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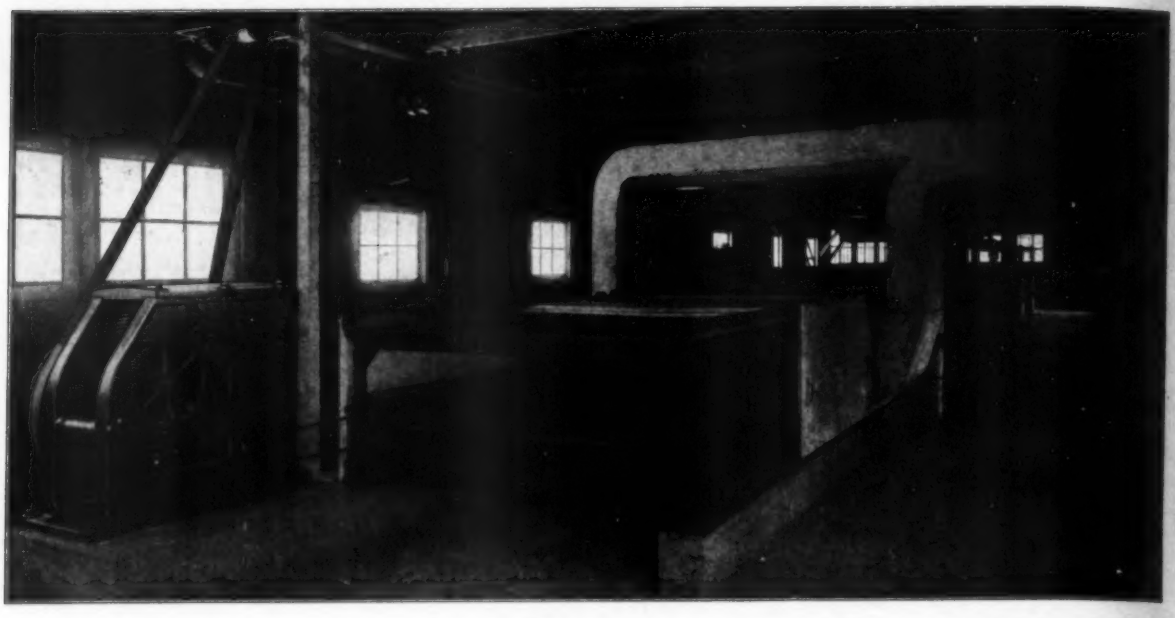

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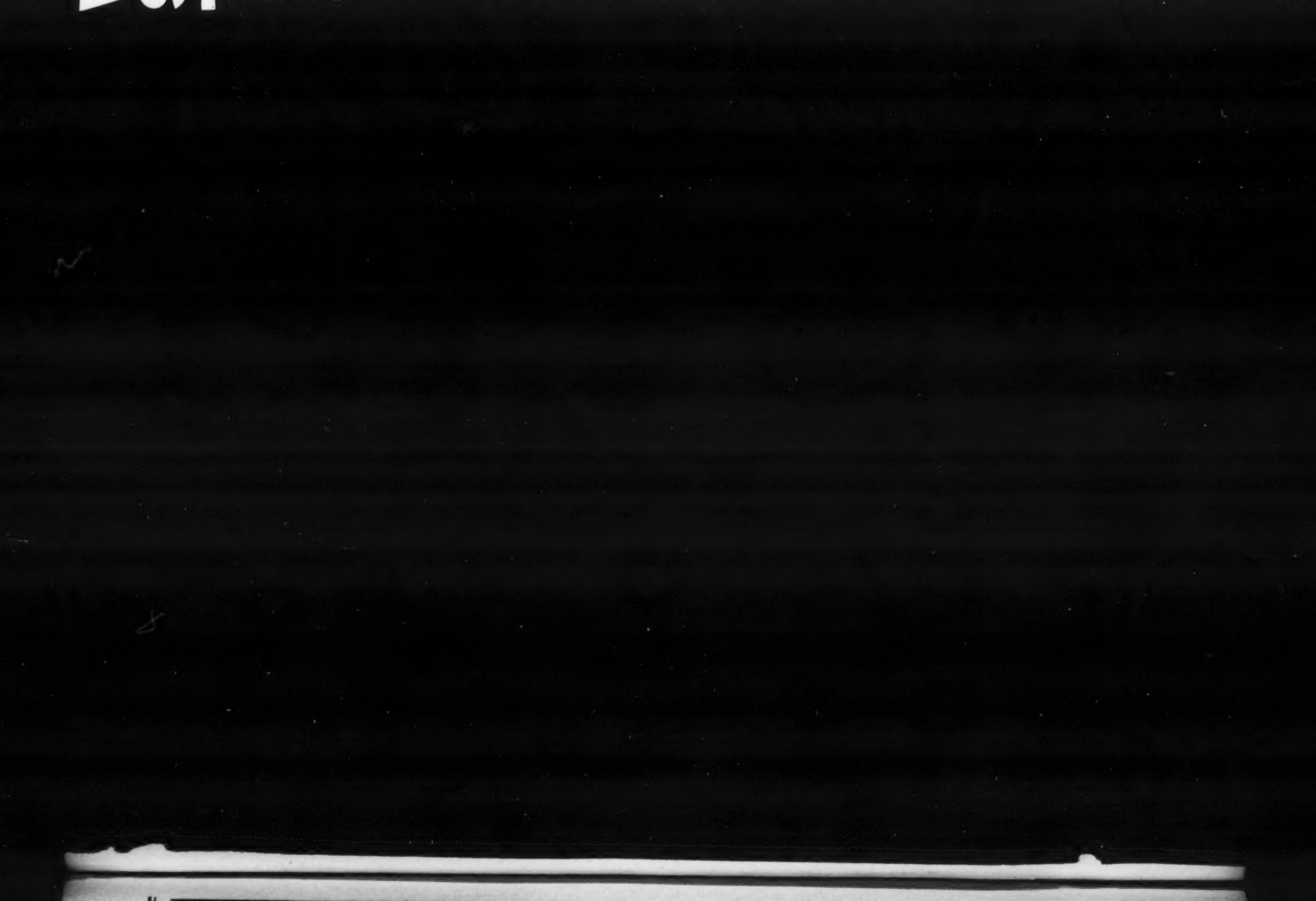

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Vol. 9.—No. 11

THE PAPER INDUSTRY

A. SCOTT DOWD
Editor

A MONTHLY EDUCATIONAL JOURNAL
Devoted to the Interests of the Pulp and Paper Industry
THOMAS J. KEENAN, Associate Editor, 18 East 41st Street, New York City

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If You Say It Can't Be Done—You Can't!

WE were privileged recently to examine the annual report for 1927 of a well-operated paper mill and were gratified to observe:

First, that the mill operated less days during 1927 than in 1926;

Secondly, that it consequently produced less tons of paper than in 1926, and

Thirdly, that it made 14.3 per cent more net profit.

All of which goes to prove a great many cardinal propositions.

It is possible to make profit in the face of over-production, for the mill used in the above illustration makes a line of papers in which there exists substantial over-production.

Then, again, it is possible to produce less volume and get better prices.

The fact of the matter is that when volume of tonnage shrinks, prices should advance.

But most would-be merchandisers know only one set of conditions under which prices can be marked up. That is when the demand exceeds the supply.

However, here was a case when the demand was less than the supply—yet the average selling price for the year was advanced.

Why? Because the inevitable law controlling profits is that when necessary volume to run plant capacity declines, prices on product must advance, in order to cover increased cost due to curtailed production.

Apply the above rule to the over-production in the paper industry such as kraft or sulphite bonds.

In the case of kraft, the leading producers admit that there is over-production; that orders in sufficient volume to run mills to capacity are not available; yet mills cut their prices $10.00 a ton in November, and orders fells to 40 per cent of capacity.

What's the answer? Handsome losses to the mills. Some kept on running and piled up stock. That's suicidal policy in face of the ever tighter-growing hand-to-mouth buying policy. Others have so much stock they cannot run any more and are forced finally to close down or curtail to the average of three days a week. The law of compensation gets them in the end.

If you produce more than you can sell, you must take less for it.

There's a proposition no manufacturer can beat, no matter how short or long a time he has been in the game; no matter how much money he has or how smart he considers himself.

The kraft paper division of the industry is now in need of help; the sulphite bond game is groggy; the newsprint mills are running only 80 per cent of capacity and big machines coming in fast.

Somebody is going to suffer.

That somebody will be the paper mill investors and paper mill directors and stockholders.

The paper merchants are suffering all the baneful effects that follow in the wake of an over-production orgy; and the consumers of paper are

E D I T O R I A L

sitting tighter and tighter each month, buying carefully, selectively, and sparingly.

What's the remedy?

Do what the well operated mill, cited in the opening paragraph of the article, did—

Curtail operating to orders on hand and raise prices to that point where the volume produced will show an adequate profit.

It is possible to curtail the sulphite and sulphate paper production and make net profit. If you can't do it, then quit!

The Montreal Meeting

THIS year's meeting of the Canadian Pulp and Paper Association, held at the Ritz-Carlton Hotel, Montreal, January 25-27, was one of unusual interest and value. It was the best attended convention of any yet held, and notable speeches and decorations relating to conditions and policies affecting the future of the pulp and paper industry in the Dominion were made at the sectional and association luncheons, as well as at the President's dinner on the closing day of meeting. The cabaret dinner on Thursday evening was an occasion that afforded opportunity for meeting a large number of manufacturers and dealers in pulp and paper, besides representatives of engineering firms and allied trades. The number in attendance at the several meetings, luncheons and dinners exceeded 600.

The business of the convention was conducted in a remarkably orderly and expeditious manner. Printed copies of all reports and papers were available in advance, and in the case of the Technical Section, stenographic transcripts of discussions were available on the morning of the day following each morning and afternoon sitting. This was something that had not been previously attempted and proved a satisfactory experiment, for participants in the discussions were thus enabled to revise the stenographic reports before leaving the city of meeting and at the same time assure speedy publication of the proceedings.

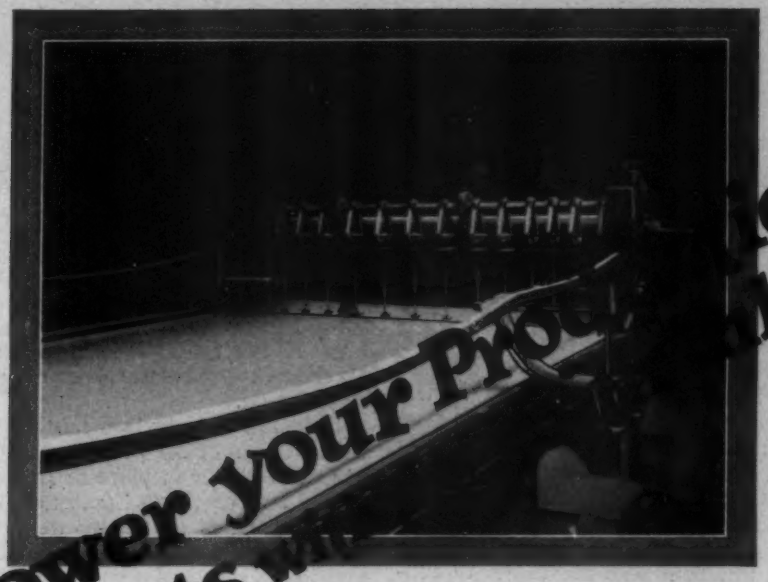
The detailed account of the meeting of pulp and paper mill engineers and chemists represented in the Technical Section of the Canadian Pulp and Paper Association which is given with a wealth of detail on other pages in this issue of THE PAPER INDUSTRY. will be read with special interest, not only by our Canadian subscribers, but by engineers and chemists holding membership in the Technical Association of the United States, who will find much of suggestive value in the line of work and study that is being followed in Canada.

Fungi That Discolor Paper in the Making

AN inquiry from a southern mill for information regarding certain bacteria in mill waters that are damaging to paper, brought to mind the experience of a mill manager in the North who had several runs of paper ruined before the cause was determined. He made his investigations the subject of a paper that attracted considerable attention when it was read at a meeting of chemists and mill engineers in New York.

Frequently, papermakers are surprised by the appearance on the fourdrinier wire of a brown sludge that seems to develop instantaneously and come out of nowhere. It is usually when a change is made in the weight of the paper or a sudden increased demand is made on the water supply that the disturbing brown flecks begin to make their appearance. The trouble is often attributed to corrosion of pipes or even to electrolysis of piping or of wires, but it does not have its origin in any of these sources; it comes from microorganisms, bacteria or fungi, that have an affinity for iron. This was demonstrated by William H. Gesell, now vice-president of Lehn & Fink, but formerly superintendent of the Hamersley Manufacturing Company's mill at Garfield, N. J., where he made an investigation into the source of the trouble.

It has been established that most classes of fresh-water microorganisms are capable of abstracting iron from water and collecting the metal in the form of ferric hydroxide on their surfaces, but the one which takes up iron most readily is **Crenothrix polyspora.** This bacterium or fungus occurs abundantly in ponds and often in reservoirs, imparting a bad taste and offensive odor to the water. Microscopists describe **Crenothrix polyspora** as an unbranched filament, but when magnified it takes on the appearance of a tall narrow vial filled with little marbles. It is in the mucilaginous substance forming the outer sheath of the fungus that the iron is secreted as it is absorbed from the water, often in quantities so great as to exceed the volume of the organism itself. When any number of these fungi develop in water—and once there they multiply with amaz-



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EDITORIAL

ing rapidity—the water takes on a rusty appearance as well as an unpleasant odor, the smell being a result of the decomposition of the outer sheaths of the fungi.

These iron bacteria, as they are sometimes called, are wind-borne fungi, and to overcome the pest, it is often sufficient, where water tanks or reservoirs are infected, to cover the receiver and repipe the system so that the overflow will not return to the well. The fungi thrive on organic matter, growth being greatest in April, in the open, but they will also develop in tanks and pipe lines when conditions are favorable. The fungi lead a communal life and for that reason multiply very rapidly. A single organism produces 100 reproductive cells in twenty-four hours, and this process continues unchecked until the saturation point is reached, unless means are taken to render the water unsuitable for their existence.

As already noted, they develop vigorously in waters containing organic matter, particularly in waters of an acid character caused by the presence of carbonic acid, and waters of this kind usually carry notable quantities of iron in solution. The organic matter may also contain iron, which after being absorbed and digested by the bacteria, is oxidized to ferric hydroxide on the outer sheaths.

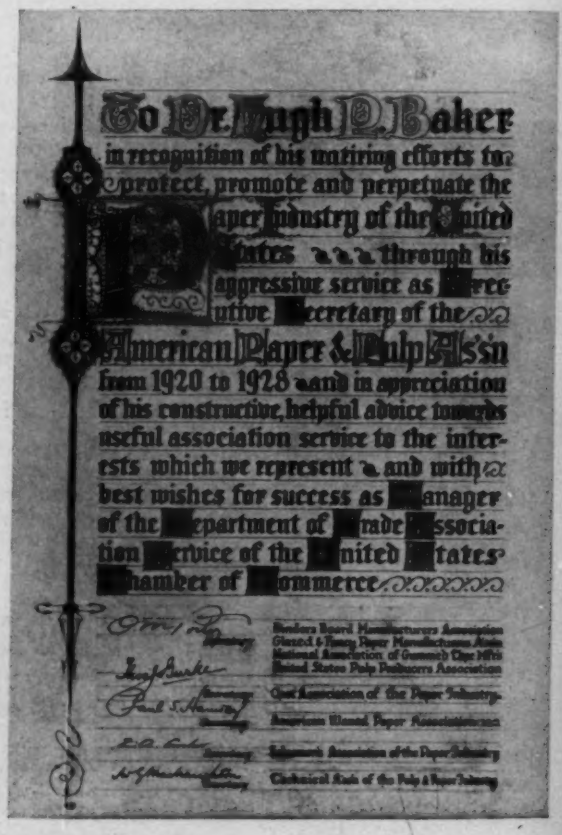
In addition to the prophylactic measures mentioned, there are several obvious methods of preventing the growth and development of iron bacteria in water. Carbon dioxide may be prevented from going into solution, or may be rendered inactive by the addition of lime, magnesia or copper, while calcareous deposits in the pipes, and acidity, may be prevented by keeping the water faintly alkaline. Suitable treatment with copper or alum will remove organic matter and leave nothing for the bacteria to feed upon.

Testimonial to Hugh P. Baker

THAT Dr. Hugh Potter Baker, who severed his connection as executive secretary of the American Paper and Pulp Association on February 1 to become manager of the Trade Association Department of the United States Chamber of Commerce, was held in the highest regard and esteem by his associates in secretarial work at headquarters has been beautifully attested in an illuminated scroll with which he has been presented, and a photograph of which is reproduced herewith. Doctor Baker took an active interest in the work of his assistants and the secretaries of affiliated associations and was also ready, as the testimonial sets forth, to give constructive and helpful advice.

The idea of drawing up a testimonial of this kind originated with Major Oliver M. Porter, who was assistant secretary of the association for a period of seven years, up to the time of Doctor Baker's withdrawal, when he was appointed acting secretary. As will be noted, in addition to Major Porter, others signing the testimonial are Thomas J. Burke, secretary of the Cost Association; Paul S. Hanway, secretary of the American Waxed Paper Association; D. A. Crocker, secretary of the Salesmen's Association, and W. G. MacNaughton, then secretary of the Technical Association.

Universal satisfaction has been expressed with the selection of Major Porter as the association's executive officer in place of Doctor Baker; he has served as secretary of many of the affiliated associations and is unusually well informed on men and affairs connected with the industry, both here and abroad. At the outbreak of the war he enlisted as a private in the 10th Engineers and was promoted in France, through the ranks, to Captain in charge of fuel wood operations, being subsequently advanced to the grade of Major. He holds degrees in science and arts from Haverford College, and was also graduated from Yale University as Master of Forestry.



THE PAPER INDUSTRY

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Vol. 9 FEBRUARY, 1928 No. 11

Pacific Coast's Hat Is in the Ring

By SHERMAN ROGERS

Tacoma, Washington

THE rapid expansion of the pulp and paper industry on the Pacific Coast has attracted the attention of the entire country during the past twelve months. Back of the development are amazing figures of tremendous timber resources. The Northwest's entry in the pulp and paper field is not a flash in the pan. Make no mistake about that. Wherever pulp and paper is produced and sold, sales managers will be compelled to recognize a new competitor that has come to stay.

There is no reason why the opening up of this new field in a national way should disturb either eastern or Great Lakes markets. The Great West is not resorting to broncho busting tactics in entering the pulp and paper field. On the contrary, the coast is feeling its way carefully and thoroughly, but with determination nevertheless.

Many readers of THE PAPER INDUSTRY will recall the enthralling address which the magnetic Sherman Rogers made to the American Pulp and Paper Mill Superintendents' Association at the annual meeting in Dayton four years ago. A year later Mr. Rogers went to Tacoma, Wash., where he was credited by the local newspapers with having rejuvenated the industrial spirit of the city. He was largely responsible for spurring Tacoma's industrial leaders to a five-million dollar development on the Tide Flats, within the city limits. The story of developments in the Pacific Coast region is one of extraordinary interest which we intend to put before readers of THE PAPER INDUSTRY in a series of vivid articles by Mr. Rogers.

It seems to be inevitable that the Pacific Coast will become one of the great pulp producing centers of North America. One thousand billion feet of timber are available there, with tremendous amounts of hemlock and spruce of remarkable pulp and papermaking quality. If properly guided, this development should prove helpful to paper companies in the East, for it is as a pulp center that the Pacific Coast region offers greatest possibilities.

To concentrate on the manufacture of pulp rather than to make paper and ship it East would seem to be the proper and logical course for Pacific Coast manufacturers to pursue, seeing that freight rates on pulp are one-third less than those on paper. But all this and more will be brought out clearly and convincingly in the series of articles to be contributed by Mr. Rogers.

The Pacific Coast has for many years produced much newsprint and book papers. The Crown Willamette Paper Company stands out as one of the nation's contributions to successful big business. However, in the past generation Pacific Coast mills have engaged in the pulp and paper field in a sectional manner only, producing enough finished product to take care of its own Coast and Mountain States market. In the opinion of the most thoroughly informed lumbermen and paper men, for the time being at least, so far as paper is concerned, the Coast should be content with developing only the far western paper market where they have both a freight and raw product advantage over eastern manufacturers. In past years only enough pulp mills have been established to take care of western paper production for a western market. With pulp, that condition has ruled the past—it will not rule the future. The Pacific Coast makes its big bid—not as paper competitors to eastern concerns, but as producers of raw material for eastern paper mill manufacture.

This newly created condition need not alarm the established paper mills of the Atlantic Coast or the Great Lakes States. On the contrary, they can safely consider the Pacific Coast's entry in the pulp producing field as a boon, rather than a menace. That is as it should be, and this industry will likely remain in this status for some years to come.

Probably no section of the United States has suffered more from misinformation than the North Pacific Coast regarding its pulp producing possibilities. No better hemlock grows on the North Amer-

ican continent than the billions of feet contained in the Puget Sound, Columbia River and Olympic Peninsula areas of the extreme Northwest. No section of the United States can produce logs in the mill pond cheaper, and many economic factors that have presented themselves to the logging industry in the past five years have created a necessity for manufacturing a large portion of this hemlock into pulp. The Far West accepts its opportunity and is preparing in no small way to take advantage of it.

The Stand and Quality of Timber

A summary of the accessibility and extent of hemlock, silver fir and spruce timber will greatly surprise the average American. In the state of Washington alone, there is standing at the present time approximately 60,000,000,000 board feet of hemlock and approximately 8,000,000,000 board feet of spruce. A fair portion of this timber is located on State owned and Federal Government controlled lands. A large portion of this vast stand of timber is very accessible. In Oregon there are over 20,000,000,000 board feet of spruce with a large amount of hemlock, although hemlock is not as prevalent in the forests of Oregon as in the Puget Sound, Grays Harbor and Olympic Peninsula sections.

Pacific Coast hemlock is a variety that cannot be compared to the species grown either in the Lake States or the New England States outside of having the same needles and a resemblance of bark. Pacific Coast hemlock is in a class by itself when compared with this timber in other sections. Hemlock in Northwestern Washington, where it grows in very heavy stands, has a very thin bark, due to the fact that with an extremely mild winter climate a heavy bark protection is not necessary to the growth of the tree. The wood of the Olympic Peninsula or Grays Harbor hemlock is very much the same color as the eastern spruce. As a matter of fact, many cars of western hemlock have been sold to eastern lumber yards as spruce without being noticed by the eastern trade. The Pacific Coast species is of a very strong texture, a very light color; the trees grow very rapidly and reach enormous diameters and long length in the old growth sections.

For many years the opinion prevailed in the East that western hemlock did not compare with eastern timber for pulp making purposes. That opinion was correct, but not in the sense the average man believed it to be. Western sawmills have been at a disadvantage for many years in selling No. 1 hemlock lumber in eastern markets because of the prejudice against the quality of this lumber that had been logged and milled in eastern states. Houses in this section that have been interior finished with first grade spruce and first grade hemlock necessitate a real expert to tell them apart. Recent tests have proven beyond all argument that Puget Sound, Olympic Peninsula, Grays Harbor and Columbia River hemlock produces a fine quality of pulp, both as to color, texture and strength. The spruce grown in this section needs no introduction. It is known world-wide for its clearness, toughness and light color.

Many easterners have gone wrong on western calculations by being misled over the acreage of northwestern standing timber. From an acreage standpoint we don't appear so good on paper; but from a standing timber analysis we stand out like Mt. McKinley above a fog. It is extremely difficult for an experienced Atlantic Coast lumberman to comprehend a section of timber that would cut 90,000,000 board feet; but there are areas of 640 acres in the Pacific Northwest that will cut out that amount. Timber lands containing 50,000,000 to 60,000,000 board feet per section attract very little attention in this part of the country, and whenever a prospective logger cruises timber that only contains 25,000,000 feet of timber per section, he raises his eyebrows and shrugs his shoulders and doesn't like to take the chance. Puget Sound or Grays Harbor timbered areas that contain 25,000 board feet measure per acre are not considered at all as either favored logging chances or favorable timbered country. It takes from 40,000 to 60,000 board feet per acre to attract the western logger, and he finds plenty of it.

To give the readers of THE PAPER INDUSTRY an idea of the density of western growth—Clallam County on the Olympic Peninsula contains 24,000,000,000 feet of timber of which 8,000,000,000 feet are hemlock and 2,000,000,000 feet are spruce. Jefferson County on the Peninsula contains 15,000,000,000 feet with a mixture of 5,000,000,000 of hemlock and 1,200,000,000 feet of spruce. Grays Harbor County contains 21,000,000,000 feet of timber with a percentage of 5,000,000,000 feet of hemlock of the finest quality found in the United States, and 1,400,000,000 feet of spruce. It is only sixty-five miles across the timbered area of the entire three counties.

Low Price Production Factors

Logging conditions are far different than any encountered in the East. Steam logging of an extremely high-powered nature is used in all operations. Camp-run hemlock timber is sold in the Grays Harbor district for $10.00 per M in tide water. The price of hemlock stumpage throughout the State is fairly well stabilized at $1.00 per M.

Water for pulp and paper making purposes is available in the four central producing sections at extremely low cost; i. e., the Columbia River, Grays Harbor, Tacoma, Pt. Angeles and Puget Sound points.

Hydroelectric power is cheaper in certain sections of the extreme Northwest than anywhere else in

the nation. This is especially true of Tacoma, where electric energy is produced at Cushman Dam at a cheaper rate than any other section of the United States outside of Buffalo, New York, and its rate is no higher than that favored city.

There has been much controversy in certain circles regarding western water. No section of the territory contiguous to the town where water can be developed with a never-ending supply at a cost not to exceed 1¼c per one hundred cubic feet.

There have been reports circulated about vegetable matter being contained in western streams detrimental to successful pulp manufacture. This statement is erroneous with the exception of one mill

Hoh River timber—Hemlock and Douglas fir Courtesy of Boland, Tacoma

world is more favorably endowed with water than the North Pacific Coast. Streams with clear water can be found in every section and brought to the proper centers of development at reasonable costs. Tacoma has a dual opportunity for water supply; mountain water in abundance, and a tremendous Artesian flow underneath the entire city and the

built years ago in a district far removed from mountain streams, where there was some difficulty encountered with vegetable matter in the water content. It would be just as unfair to charge the North Pacific Coast with contaminated water supply so far as vegetable matter is concerned as it would be to charge that New York was a typhoid fever infested

city because they did have a case there several years ago.

The freight rate on pulp from northwestern ports, water borne to New York is $7.00 per ton per conference schedule. This rate will probably be lowered somewhat when pulp mills now under construction are completed. The railroad rate from Columbia River, Puget Sound, Grays Harbor and Peninsula points is $12.00 a ton to the Chicago terminal section.

Chemicals for pulp making cost no more as a rule in the Northwest than they do in the Northeast, whereas wages in the Northwest are lower than they are in the Northeast, with the added advantage of being able to work without inconvenience twelve months in the year.

Courtesy of Boland, Tacoma

A logging railroad near Tacoma

Advance in Logging Methods

The first crude sawmill in the States of Washington and Oregon was built in 1853 near Seattle. There being no population, there was little market. It was nearly a quarter of a century later before there was any real commercial manufacture and shipping of lumber from the greatest timber empire known in the world. Theodore Roosevelt one time remarked that the great Douglas fir forests covering the Cascade slope from British Columbia to California were the eighth wonder of the world.

Tremendous sawmill operations were later established all the way from San Francisco to Ocean Falls, B. C. Billions of board feet annually have been cut, markets of the world invaded, trade territory established; and as the qualifications of Pacific Coast timber became known throughout the world the western lumber business has rapidly expanded. The North Cascade range stretching from the Pacific to the west slope of the Cascade Mountains, contained and still contains a highly diversified stand of timber, mainly composed of Douglas fir, cedar, hemlock and spruce. Unlike any other sections of the United States, with the exception of the redwood forests of California, the north coast timber grew to tremendous proportions, both as to girth and height. Growing in dense stands in a country of heavy rainfall with rich soil underneath, the timber of the entire coast section grew to maturity remarkably free of limbs, and due to the heavy growth, exceptionally straight, Douglas fir reaching a height of from 200 to 250 feet.

The early logging in the Puget Sound, Grays Harbor and Columbia River sections was performed by oxteam. The old loggers in this section who are now both nationally prominent and locally wealthy, began their logging career driving oxen. This method of lumbering quickly gave way to the steam donkey. No living creature could successfully cope with logs six and eight feet through and forty feet long. Logging began with the ground-lead donkey, but this method became too slow and the flying-machine and high-lead came into vogue. There is very little use of trying to describe this method of logging to eastern readers. Regardless of how conservative statements may be made, they would be taken with a grain of salt anyhow. Logs forty feet in length and from three to eight feet in diameter dangling through the air at a high rate of speed from the woods to the loading grounds sounds "spooky" in the extreme to a man who hasn't actually seen the performance.

However, the States of Oregon and Washington in 1926 cut 11,000,000,000 feet of timber, a major portion of it with either the high-lead or flying-machine method. Of course no logging in this section can be done without logging railroads and steam locomotives; yet the cheapest logging in the world is performed in this district, due both to machine methods of logging and the tremendous stands per acre. As I write this article I have just read over the cruise of a section of timber (640 acres) in the Grays Harbor section that will scale 88,000,000 feet. While

this, of course, is an exception, tens of thousands of acres will run an average of from 40,000,000 to 50,000,000 feet to the 640. Heavily timbered sections are of course the objective of every logger. It was so in the past. However, years ago the heavy logging was done along streams or on the flats. In other words—the easiest first and "you always have the easiest." But the economics of the day governed the timber that was logged in the early days, and still does. An operation can only cost so much and the logger live. If he hasn't the class of timber or the logging of it that permits a profit he is forced to quit. The result is that tens of thousands of acres of timber lands along the Columbia River, Grays Harbor from the Harbor to Olympia, and the entire Puget Sound country have been logged off.

Now a new situation confronts the logging industry. As the flats became logged and operations extended back into the rolling country, the operators were confronted with much more hemlock and lots less fir. Old "mother necessity" compelled a new outlet. The loggers began to investigate the possibilities of using the tremendous stands of hemlock for some other purpose than lumber. They investigated the possibilities of pulp. The field looked good to them and the present activity in that line is the result.

The foregoing simply means this: pulp timber in this country is a permanent proposition. In the entire coastal region, this is true and especially so of the stands from the Columbia River to the Straits of Juan de Fuca. Heavy rainfall means not only a minimum fire danger but guarantees rapid reforestation. Some of the country that was cut over thirty years ago has stands of thirty thousand board feet per acre at this time; this not due to the size of the timber but to the extreme thickness of the growth. In the coastal region, hemlock reforests very rapidly, and long before the present supply is anywhere near exhausted there will be a new supply of pulp timber on the lands that are now being cut over. There will be large areas of new forests within the next thirty years on the lands that were cut over during

"Pruning the Tree"

A cartoon of Uncle Sam cutting off the limb of a tree representing our American timber supply, the act of which is labeled "Rapid Consumption Without Adequate Replanting," and impends his precipitation into the abyss of "Timber Poverty," is the composition which won the award of first prize to Sam E. Nash, Jr., of Tyler, Texas, by the American Tree Association. This cartoon is to be used in the association's American Forest Week in April.—Editor.

Courtesy of Boland, Tacoma.

Logging on Puget Sound

the last thirty years. There is more hemlock timber left in the woods during logging operations than grows on most of the east[illegible] believe that the timbers left in th[illegible]verage not less than 5,000 feet per acre i[illegible]e districts where hemlock predominates and in a great many cases more than that.

Therefore, the pulp operator coming into the Northwest knows when he places his mill in operation that his grandson can be operating the same mill in one hundred years from now, or at least he can be operating from the same territory. He knows that he will have a supply of timber that he can always draw from, due to the fact that the loggers and sawmill men do not want to go into the pulp business. The result is that the scores of logging camps and sawmills will always be able to take care of the individual pulp mill owners. He will always be able to buy hemlock in the water at a very reasonable price, and all he wants of it.

Every big operation, going back into the timbered belts to cut fir, spruce, and cedar, must of necessity log all the hemlock as they do so. The pulp operator is not in danger of being held up by the logger leaving hemlock timber uncut in the woods to force up prices. Pacific Coast operations do not permit of that kind of logging. When the flying-machine or high lead strips a section of timber, it means that until a new growth takes place there will never be any more logging on that section. What is left is lost and totally lost because of the fact that logging heavy fir or heavy cedar would destroy the hemlock anyhow—therefore it must be logged, and when logged it must be sold.

From the Straits to the Columbia

Between 10,000,000,000 and 12,000,000,000 feet of pulp timber will be logged into Puget Sound. Twenty-eight billion feet will go into the Straits of Juan de Fuca and Grays Harbor. Ten billion more will go into the Columbia River, Willapa Harbor, or be taken to the mills between Olympia and Portland.

Northwestern paper making began on the Columbia River. There are still tremendous stands of hemlock that will be dumped into the Columbia River at its mouth and utilized in pulp mills between there and Portland. Grays Harbor is the center of the greatest hemlock-spruce-and cedar producing area of the Pacific Northwest. That favored section also contains billions of feet of the very finest quality of Douglas fir. The entire territory west of the Cascades from the Columbia River to the Straits contains the most favorably diversified timber stands of the entire timbered area of the West. Billions of feet of red cedar and Alaska cedar are found in this section that makes the finest cedar finished lumber and cedar shingles produced in North America. It contains billions of feet of spruce that are well scattered throughout most of the area. It contains Douglas fir of both red and yellow species of a grade unsurpassed in any other section; and the hemlock contained in this localized empire has long been conceded the highest quality hemlock found anywhere in the world.

When we take into consideration the fact that, due to the tremendous rainfall of this entire area, there will be a perpetual forest in the years and centuries to come, we realize the great part this section of the country will play in the future timber supply of the nation. It will be the home of diversified forestry products and manufacture. With pulp and paper mills, veneer plants, furniture plants, sawmills, box factories, door factories, ply-wood plants and scores of other timber finishing works, we realize that this country will be developed with less timber waste and more diversified lines of manufacture than any other timber section of North America. We are rapidly reaching the point where every particle of timber product but the bark will be utilized, and in the matter of hemlock timber, the bark will also be used.

Contiguous to Hoquiam and Aberdeen, twin cities of Grays Harbor, there is ample water to take care of any and all future development. Logging railroads extend north into the Peninsula and also down into the North River district, and mills of all classifications located in Grays Harbor will be guaranteed a perpetual raw product supply. Pt. Angeles, in the northern extremity of the Olympic Peninsula, will secure its fair portion of the heavy hemlock and spruce stands between the Hoh River and the Straits. Pt. Angeles and its contiguous territory draws from a small area, true, but that area contains ten billion feet of pulp making material alone, to guarantee its future operations.

Tacoma and its sister cities on Puget Sound will draw their future timber supply from three great national forests and from billions of feet of privately owned timber; i. e. the Washington National Forest Reserve, which contains heavier stands of pure hemlock and silver fir than any other section of Washington, the Snoqualmie Reserve, the Rainier National Forest Reserve.

No Monopoly of Forest Control

There has been some apprehension in eastern circles regarding the future control of forest products in the hands of a few mills. This is an erroneous contention pure and simple. The development of the lumber industry West, was conducted along totally different lines from the development of the East. In the East, the sawmills were all-powerful, owning large tracts of timber and supervising their own logging operations. In the West the tables are turned, in a majority of cases. Here the logger is all-powerful. He has learned one cardinal principle: that in union there is strength. The loggers stick pretty well together. They maintain a fair price

and are in the main successful from a financial standpoint.

Huge investments are necessary in logging operations, just the opposite of the old time and even the present eastern individual. To equip the average logging camp with logging railroad, logging railroad equipment and heavy steam logging equipment, takes an initial investment anywhere from a half million to a million dollars. Most of the great successful loggers, whose names are nationally known, have no sawmill affiliations. They sell their logs in the open market—spruce to a spruce mill, cedar to a cedar mill, fir to a fir mill, and now it will be hemlock to pulp mills and hemlock finishing mills. No sawmill octopus dictates to the logger. This system of operation will always guarantee the various finishing mills, from pulp to veneer, a perpetual supply of material at the current market prices.

The 12,000,000,000 feet of pulp timber that will be logged into Puget Sound from private timber and the three great Cascade Range national forest reserves, will find its way to pulp operations situated all the way from Bellingham to Olympia. However, Tacoma will become the chief center in the Puget Sound area because of the cheapness of its hydro-electric power and the tremendous water supply it has at its back door.

Hoquiam and Aberdeen, the twin cities of Grays Harbor, will be the central producing points for approximately 20,000,000,000 feet of pulp timber southwest and north of the harbor. Aberdeen and Hoquiam have ample water supply, and a large eastern concern is contemplating heavy power development in the Cowlitz, Clearwater and Hoh sections that will give the twin cities cheap power rates.

The Hoh River, situated in the central point of the Olympic Peninsula in the very heart of the great spruce, hemlock section of the west slope of the Olympics, will undoubtedly secure transcontinental service in the latter part of 1928, and should become a great manufacturing center for the shipment of rail haul pulp, veneer woods and lumber. It is only the shortsightedness of two great railroad systems, the Northern Pacific and the Milwaukee, that has left this rich empire undeveloped during the last ten years. It isn't conceivable that they will remain blind much longer.

One thing is certain: as the years go by Tacoma, Grays Harbor, Pt. Angeles and the Columbia River will become the recognized centers of the Northwestern pulp industry, due to exceptional ocean shipping and transcontinental rail service at these points. The Hoh River section will soon come into its own as the great interior, all-rail producing section.

In any case, the Pacific Coast has thrown its hat in the ring in pulp and paper manufacture, and the balance of the pulp and paper world might just as well look the situation square in the face. Veiled innuendo will not discourage the Northwestern pioneer one iota. Pioneers who have developed this section of the country, and are not going to be frightened by a little cold water poured on their backs, for the very good reason that every successful old-timer in this great section has created his success after swimming in cold water for a quarter of a century. Their hat is in the ring—make no mistake about that—and is going to stay there.

1,000 Pounds Steam Pressure

PAPER mill engineers will be interested in knowing that at Laurel, Mississippi, in the plant of the Mason Fibre Company, is a steam boiler that operates at the highest pressure so far employed for process purposes. It furnishes steam for the manufacture of a sawmill waste product called Presswood.

A pressure of 200 lbs. is first applied to waste wood chips and they are cooked thus for only 10 to 15 seconds. The valve is then opened fully and the chips subjected to a pressure of 1,000 pounds. This pressure is maintained for the brief period of 3 to 5 seconds. Immediately after this the container is suddenly opened and the pressure released, the pressure dropping 1,000 pounds. This causes the chips to explode for reasons known to all paper mill engineers. A wood pulp of long fibers is thereby produced. After this, the exploded chips are pressed into fibreboard.

The boiler is a 4,000 sq. ft. Babcock & Wilcox Cross-drum type. It has 2 in. tubes ⅛ in. thick. The drum is of a solid steel forging. It has drawn ends; 4 ft. in diameter; and 4 in. thick—Schaphorst.

Time Allowed for Interviews in This Office

WHILE on a recent motor trip, the writer paid a visit to the plant of the Dominion Chain Company in Niagara Falls, Ontario. Neatly printed and framed, the following "time schedule" was seen hanging on the wall of the manager's office. With the permission of Mr. H. C. Hegelheimer, it is passed along to you here for what it may be worth:

	Hours	Minutes	Seconds
Friendly calls	0	2	1
Friendly calls when busy	0	1	1
Life Insurance Agents	0	0	1
Friends with Schemes	0	0	5
Salesmen without tact or proper knowledge	0	0	1
Friends who ask us to have a drink	?	?	?
Friends who ask us to eat	0	59	0
Friends wishing to play golf	2	3	9
Those wishing to pay bills	58	59	59

—Sibley.

Better Personnel Control—Humanly

By HERBERT D. ALLEN
Vice President, Elliott Service Co., New York

The first of a series of articles by Mr. Allen which will appear in subsequent issues of The Paper Industry on subjects as follows: Direct Contact with the Worker; Foremanship Development; The Key Position of Man Power; Developing Mass Psychology in the Paper Mill.

THE paper industry for some time has lifted its voice to indicate that it was aggrieved—beset by problems of over-production, lowering prices, diminished profits, and buyers becoming more and more unreasonable as to both quality and price.

Yet when we talk to coal operators, textile men, automobile manufacturers and toy makers, among others, we hear the same story. Can it be that this is a general condition of business today? What is the situation for 1928? Two facts stand out from the reviews of business conditions in 1927 and the forecasts for 1928:

1—The continuance of our present prosperity is dependent upon maintaining our present wage scale, thus maintaining the worker in his present position as the major consumer of American manufacture.

2—Maintaining present profits, or any increase in profits, must come from lower production costs. It will not come from higher prices, as there is every indication that the price index will generally continue to decline.

only through an increased productivity of labor. Obviously, labor will yield this increased productivity only if it wants to. It cannot be commanded or forced to.

Consider the opinion of the three living leaders of American business thought:

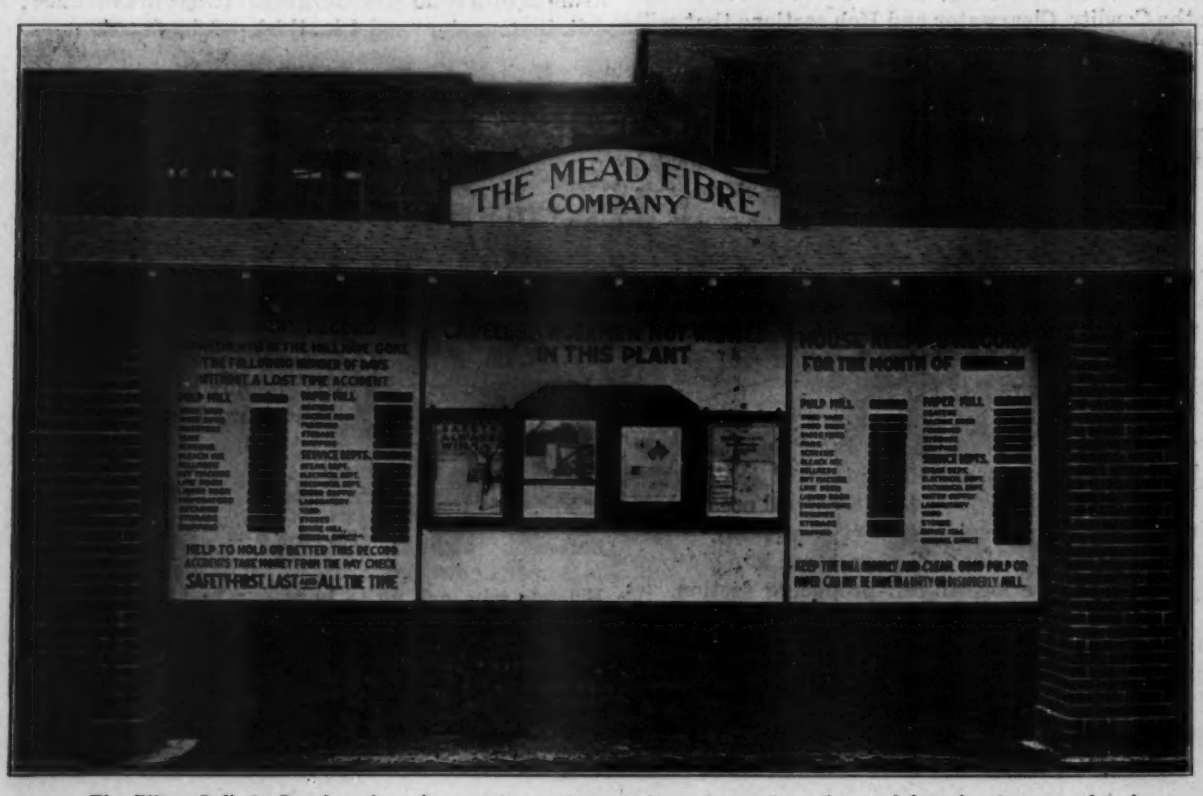
These facts can be brought into agreement

Charles M. Schwab:

"...the future of industry will depend less upon developing new machines than upon the developing of the management of men on a human basis."

Herbert Hoover:

"...manufacture and distribution have by savings and diminished profits accommodated themselves to the situation of de-


THE MEAD FIBRE COMPANY
IN THIS PLANT
FOR THE MONTH OF
PULP MILL
PAPER MILL
SERVICE DEPTS.
HELP TO HOLD OR BETTER THIS RECORD
ACCIDENTS TAKE MONEY FROM THE PAY CHECK
SAFETY FIRST LAST AND ALL THE TIME

The Elliott Bulletin Board used as the attention getting unit in an impressive safety and housekeeping score board

creasing prices without reduction in the average level of wages, and therefore in the national buying power. But the great extent to which industry has accommodated itself to lower prices by decreased costs makes for a sounder condition for the coming year."

Andrew W. Mellon:

"...under the conditions which prevailed last year, competition was naturally more intense and the greatest profits were made by those concerns capable of eliminating waste and inefficiency in production and adapting their products to the demand."

On the front cover of the first issue of the combined magazine, Factory and Industrial Management, over the signatures of James H. McGraw and A. W. Shaw, appears the following statement:

"The men who manage industry are faced with a mighty task. Both at home and abroad competition is intensified. Still greater efficiency in production is demanded; new requirements call on all our ingenuity, on all our skill in management, on all our accumulated experience."

The job of maintaining or increasing production at a lowered production cost while maintaining quality, maintaining wages and reducing losses in material, machine productivity and in accident costs —that's a pretty big order.

To say that we must have "an increased productivity of labor" sounds pretty cold-blooded. But consider the problem humanly, in the words of a master mechanic of one of our large steel plant subscribers:

"If men are really interested in the concern they are working for, if they really understand what it is all about and are thinking straight, and realize that the interests of management and men are identical, they will do that little bit more or better or safer that makes the difference between working for pay day and working because they like it."

Just how difficult is it to stimulate production per worker without sacrificing quality or increasing waste? Nearly every manager will admit that if an individual worker actually wanted to, and wanted to hard enough, he could accomplish this in terms of his own job.

The job is to get him to want to. First he must be stimulated to a desire for greater success—solid success based on right thinking, right working and right living.

In order to work happily and live happily, the worker must be thinking straight. It seems to us that we have been afraid of this thought because

A complete localization of an effective bulletin board service. Notice the reproduction of the company's advertising (getting across to the workers the company's promises to its customers) and the company bulletin in the right hand panel

it has been the subject of so much "bunk" in industry. Yet it is the truest thing in life and business. By and large, we all do what we want to do, not what we ought to do. We ordinarily respond to duty grudgingly, in a routine and formal manner.

Our response to what we want to do is wholehearted, vital, emotional and tremendously effective and resultful. The whole problem of leadership, of morale building, is in getting a group of men to want to do the things you want them to, and to want to do things the way you want them to do them.

But without getting too deeply into psychology, this "want" (a desire or emotion) as it relates to working, must follow a thought or a line of thinking. The worker must be able at least to rationalize his attitude towards his job. Rather obviously, it seems to us, the worker cannot want what management wants unless he understands what it is that management wants.

What Does Management Want the Worker to Know?

Rightly, different companies have different policies as to the extent to which the public or the workers should be taken into the company's confidence as to results—costs, profits, etc. But can it be argued that the workers should not know the conditions under which the company is operating?

Management generally is getting rather tired of "successful" volume production in red ink. The earning point (and the loss point) in too many large industries today is dangerously close to capacity operation.

Ownership is saying to management, "Do a better job in 1928, and do it without any further addition to physical investment and equipment."

Is there any reason why the workers should not know this? Is there not every good reason why the worker should know it? Would management attempt to do a constructive and whole-hearted job if management did not know the rules of the game?

We believe it possible, and have in fact demonstrated that it is possible, to get across to workers a platform, a simple statement of economics on which both management and men could agree. And the statement happens to check fairly well with the published statements of both the leaders of business thought and what labor leaders are trying to get across to labor in 1928. Here is the platform:

> "All business has as its economic aim and justification the making of profit. If, due to the competition of more efficient competitors, the business fails to make a satisfactory profit, the business fails.
>
> "Anything which interferes with the operation of this economic law is unsound and directed against the best interests of both men and management.
>
> "The real, old American idea of business is competition between individual economic units (men or businesses or localities). Anything which tends to disturb this essential element of competition is un-American and essentially unsound. As directly opposed to the communistic idea, the worker must recognize his own selfish advantage in the maintenance of the free competitive element in industry and in all industrial relations.
>
> "It is to the selfish interest of the worker, therefore, to recognize the necessity for the business making a profit in a competitive market. It follows that each operation in production must be efficient in order to make this profit."

What should be the attitude of the worker? The selfish attitude—just as it is the natural and normal attitude of all of us. We return again to the phrase "enlightened self-interest."

Is This Personnel Control?

But what has all this to do with personnel control? Just this:

The military form and spirit of organization is breaking down in American industry. We have found that workers—human beings—do what they want to do, better, cheaper and more uniformly, than what they have to do. Desire is a safer and more effective production motive than fear.

We have learned that in order to establish a real sales control, we must control public opinion through consumer advertising. Opinion inside an organization—the way the worker understands his job, thinks and feels about his job—can be similarly controlled through intelligent, honest and sincere internal plant advertising.

But it must be truthful; it must not be bunk; it must always appeal to the workers enlightened self-interest just as does consumer advertising. It is a job calling for experience, and for expertness in and a real knowing-how of the handling of the tools of paper and ink, illustration and copy. Most important, it must start from what is on the workers mind, and it must always talk and appeal from his side of the fence.

To be effective, such internal advertising must always look and sound practical; it must become a part of a very practical job—making a living. It should not be idealistic, nor should it seek in any way to exploit the worker. It will inevitably fail unless the effort recognizes that the worker cannot be talked down to, that he dislikes and resents the paternalistic attitude and approach, that he is very independent and cannot be commanded to think along certain lines, and that his attitude and his conversation about his job, with his fellows, is unconsciously negative in character. He doesn't like to seem inter-

ested in anything of an uplift or educational nature.

Such an internal advertising program must be as highly organized and as carefully planned as a major consumer campaign. In the Elliott Plan we use an impressive metal, glass enclosed bulletin board; actual photographs of daily news events with which to insure a daily interested attention to the board; various display units for the use of management in "localizing" the effort and making the service a part of plant or mill operation; photographic production stimulation and waste reduction material; photographs of and signed messages from leaders in industries, sports, government and the professions; and furnish smaller unit boards for the display of this material throughout the plant.

Included in the plan is a complete safety advertising program, starting with recommendations for organizing the plant for safety, furnishing safety posters regularly, accident charts on which management recapitulates the accident record for the previous month, and of course, suggested letters for the use of management in giving the safety program the management "back-up" without which it cannot be effective.

It is interesting to note that in the recent safety contest conducted by THE PAPER INDUSTRY, eight of the first twelve places were won by users of the Elliott Plan. The first four places in the contest were won by subscribers whose average length of use of the plan was 5.4 years.

An integral part of the plan is Foremanship Development. As vital to the morale of an army as are general orders, no real leader would neglect his noncommissioned officers. Foremen actually run a paper mill, just as sergeants and corporals actually run the army. Yet all too often has management assumed that because a worker had proven himself a good papermaker, he knew how and could get others to become good papermakers. The leading and management of human beings is the most important part of any foreman's job, and the part he ordinarily knows least about.

Continuous, planned internal publicity, carefully synchronized with foremanship development, has demonstrated its effectiveness in helping management to get "that little bit more or better or safer" co-operation from personnel that is all too likely to spell the difference between red and black ink on the operating statement for 1928.

What Does a Motor Truck Cost?

By ERNEST A. SAUNDERS

This article is the first of a series which will cover the important phases of truck use and economy in the paper industry. It will include such points as "The Truck vs. Other Means of Transport"; "The Proper Selection of Equipment"; "Maintenance and Driver Policies"; "Methods for Economizing on Trucks"; "New Developments and Plans that Give Trucks Wider Fields," etc.

These articles will cover a concise presentation of things the busy executive of the paper mill needs to know to keep up with the times on the subject of motor trucks.

EVER since motor trucks were first used by paper mills, one feature of their operation has stood out as a confusing and burdening issue to those executives who are responsible for using trucks only when, and if, they can be used with profit.

The executive of a paper mill finds that this particular feature is his greatest difficulty in his attempt to apply truck use correctly. It is the feature of cost knowledge and cost comparison.

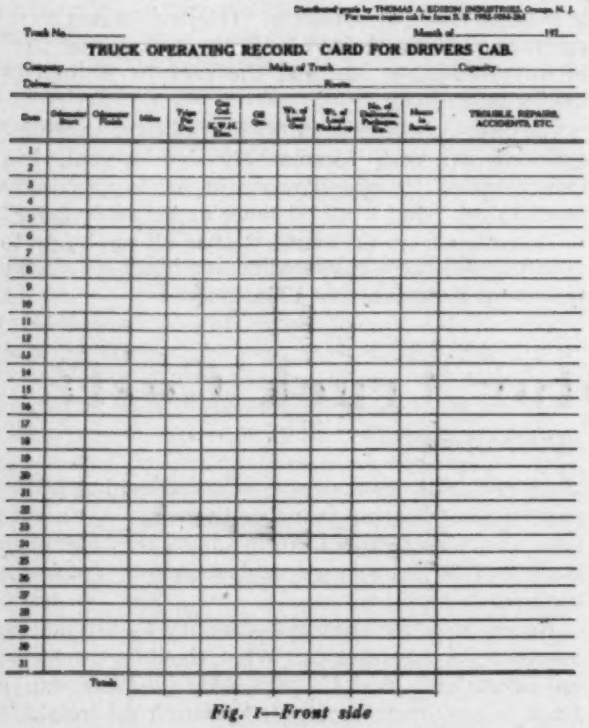
In other fields that use trucks, notably in retail fields and businesses with established load units and routes, it has been possible to measure and estimate truck cost with some degree of accuracy, but in the paper manufacturing industry there has not as yet been a concerted effort to form a basis on which such costs can be interpreted and compared from one business to another.

Hence, it is an utter impossibility to attempt to answer such questions as, "What should a truck cost on direct haul work?", "On what distance can a truck be used more profitably than railroad freight?" or "What percentage of manufacturing cost is a fair average for truck expense?". These are fair enough questions and in some industries they can be answered. But not so in the paper industry, for no standardized basis has yet been applied to the costs as found by various mills. Each mill has, in truth, a different conception as to what items of expense comprise the true cost, and it is impossible to find any similarity between two mills under present conditions which will be helpful as a comparison to either of them. It is a frequent occurrence, in fact, for a mill executive to be misguided by what appears to be a trucking expense in the experience of one concern, although that concern may be operating under distinctly different conditions or including or excluding cost items which bear a different relation to his conditions.

There is a perfectly good reason for this state of affairs in the paper industry and there is likewise

a good reason why mill executives are now feeling the need for a standardized, complete method of computing truck costs. The first installations of trucks in the field of paper manufacturing were naturally of a piece-meal nature. One vehicle was purchased at a time and each unit was considered the subject for a self-contained system of financial and performance records. This method became firmly grounded and developed into a habit long after it was outgrown. It was still retained even when the first pieces of equipment had gradually developed into an essential part of the organization.

Coupled with this is the fact that it has long been



Distributed again by THOMAS A. EDISON INDUSTRIES, Orange, N. J.

Truck No. _____ Month of _____ 19__

TRUCK OPERATING RECORD. CARD FOR DRIVERS CAB.

Company _____ Make of Truck _____ Capacity _____

Driver _____ Route _____

Date	Odometer Start	Odometer Finish	Miles	Tons Del.	Gal. Gas K.W.H. Elec.	Gal. Oil	Tons of Load Delivered	Tons of Load Backhauled	No. of Deliveries Performed Each Day	Hours in Action	TROUBLE, REPAIRS, ACCIDENTS, ETC.
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31											
		Totals									

Fig. 1—Front side

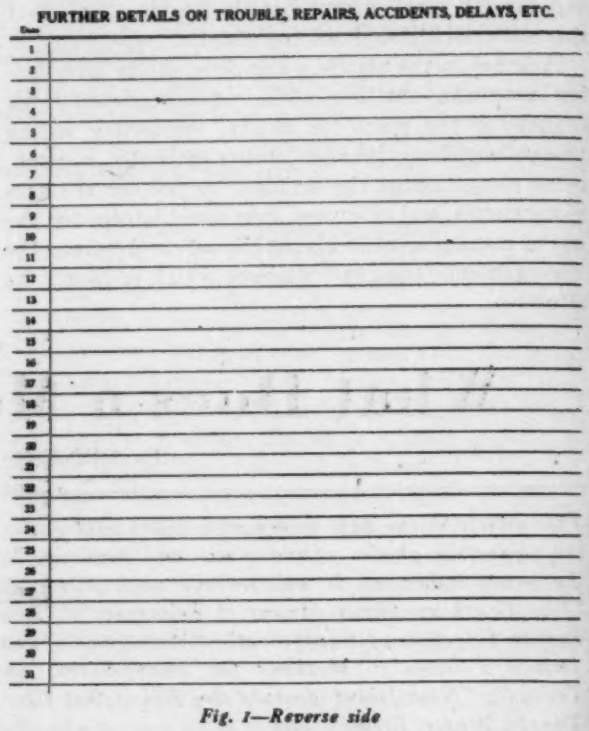
considered a custom in manufacturing and merchandising processes to maintain records of detailed expense information for a given job or service and to analyze such expense into its component parts. This has influenced truck cost-keeping methods in the field of paper manufacturing and in similar fields to the point where the executives of such a business are inclined to recognize the value of records and to experiment with methods of keeping them that will permit valuable comparisons to be drawn.

So what is needed today is a standardized method of computing truck costs by paper mills which will enable one mill's experience to be matched up against another's on such questions as "Trucks vs. Horses," "Trucks vs. Railroad Freight," etc. Such a method also, would permit comparisons to be drawn between different units of equipment and different methods of hauling in any one mill's practice.

Elements of True Cost

It is not hoped, in this article, to suggest such a method, as to do so would unquestionably require a study of many months. No accountant, truck authority or association, to the writer's knowledge, has as yet undertaken such a study as applied to the paper industry.

Probably the best system which can be used, for lack of one which would take into account the peculiar needs of the paper industry, is the system known as the National Standard Truck Cost System which is the product of the Truck Owners' Conference, Inc., of Chicago. The two important key forms



FURTHER DETAILS ON TROUBLE, REPAIRS, ACCIDENTS, DELAYS, ETC.

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Fig. 1—Reverse side

of this system, the daily record and the truck operating record, are reroduced herewith.

The greatest difficulty heretofore in establishing a correct, uniform basis for figuring costs, has been a lack of understanding as to what items should be included in the cost analysis. Let us first give a list of these items and then mention briefly the practices that are generally considered to be best in a truck cost computation.

Fixed Charges

Amortization (reserve for depreciation)
Interest on Investment
Insurance
  Fire, transportation and theft
  Public liability and property damage
  Collision
Taxes
Licenses

Maintenance Charges

Garage
  Rent, heat, light, power, etc.
Repairs
  Materials
  Labor
Tires
Painting
Overhauling
Administration requirements

Running Costs

Gasoline (or electric power)
Oil
Wages of drivers and helpers
Grease, kerosene and waste

A few words of explanation regarding the "fixed charges" are in order. The total investment of the equipment is figured minus the tires because these are taken care of separately among maintenance charges. The investment is best depreciated on the basis of the number of miles traveled in the period, that is, pro-rated according to the estimated mileage life of the vehicle which varies according to the size and make of truck. Tires are depreciated in the same way, but separately because they have a different figure of mileage life.

Interest on the investment (one of the fixed charges) is figured at one-half the current rate of interest because the item of depreciation throughout the truck's serviceable life reduces the amount of the investment each year. Thus it is considered best practice to equalize this by considering only half of the interest charges.

What Forms Are Necessary?

With the above outline of desired information as the objective, we are now ready to see how this information can be obtained. Although it will be impossible to give a system which will be flexible enough to meet any individual set of conditions, the following points will be valuable in indicating what kind of records are necessary. In working out a cost-record system, many concerns make the mistake of requiring too much of the driver's time and expecting too much of his intellectual capacity. Wherever possible, this work should be done by the bookkeeping department.

1—Driver's Daily Report. Some method of recording the driver's work, vehicle expense, mileage, etc., from day to day, is obviously necessary. The Driver's Daily Report form usually works out very similar to a day-book in a bookkeeping system and the items shown on it are later entered on summary records by the clerical department. Many concerns

Form 1 NATIONAL STANDARD TRUCK COST SYSTEM, TRUCK OWNERS CONFERENCE, INC., CHICAGO.

DAILY RECORD, MONTH OF _____ ; HOURS IN WORKING DAY _____ FROM _____ TO _____ TRUCK NO. _____

OPERATING DATA																COST DATA (Posted to Page 3c)																	
Date	Weather	Temperature	Number of Trips	Delivery or Pick-up Stops	Total Units (See D) Out	Total Units (See D) In	Miles	Time in Hours and Minutes: Available but not used Hrs.	Available but not used Min.	Loading Hrs.	Loading Min.	Running Including Stops Hrs.	Running Including Stops Min.	Laid up for Repairs Hrs.	Laid up for Repairs Min.	Gasoline or Current: Gals. or K. W. H.	Gasoline or Current: Cost	Cylinder Oil: Pints	Cylinder Oil: Cost	Driver Cost	Helper Cost	Cost of Repairs: Ordinary: Material Charges	Cost of Repairs: Ordinary: Labor Charges	Cost of Repairs: Ordinary: Labor and Material Body	Cost of Repairs: Accident: Body and Chassis	Substitute Vehicle Rental
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provide each driver with a pad of printed slips, one of which is turned in every day. On this he records purchases of fuel, oil, etc., which are later checked with garage invoices.

On this slip he also gives his performance records for the day. For example, at the end of a day's run, he inserts his speedometer reading. At each unloading of goods collected or loading of goods to be delivered, he inserts the number of orders in the proper space on the card. Finally, the number of round trips made in the day is often required.

The above is all that is really required of the driver as far as cost keeping is concerned. There are no difficulties to be met in most cases in getting this amount of information accurately because a daily report form of this kind contains nothing which is too much to expect of the driver. Most attempts to go beyond this to get further data are dangerous.

A final point worth mentioning about the Driver's Daily Report is that many concerns find it advisable to allow a space on the card for the driver's report on the condition of the vehicle. This is often very helpful in encouraging drivers to report irregularities of running which may be adjusted or repaired in their early stages, thus saving considerably on later repair bills.

2—Truck Day Sheet. The driver's daily reports must be turned in to the clerical department and here organized and put together in some systematic manner. The truck day sheet answers this purpose. There is one sheet per truck per month. The days of the month are ruled horizontally and the various items which are entered each day are ruled vertically. These items are merely a recapitulation of the driver's reports. At the bottom of the column, where it is summarized at the end of the month, provision is made for adding the repair charges which have been incurred against that truck during the month. (See Point 4 below) and any other charges directly chargeable against the month, such as tire cost (according to mileage), driver's and helper's wages, garage rent, grease supplies, etc. The result is that the final figure represents what it has cost to operate the vehicle during the month with the exception of the fixed charges and those costs which are rightfully to be distributed over 12 months in the year. These latter costs are taken care of in this way. There may be a space allowed on the sheet set aside from everything else, where large current cost such as overhaul, painting, fines for traffic violations, etc., are inserted. These, together with the fixed charges (depreciation, interest, taxes and license) are usually carried over month to month and finally computed at the end of the year. Or they may be so arranged that the large current costs may be divided by 12 and the fixed charges per month added as they are. Thus, the owner has at least an approximate figure at the end of each month which he may use as his guide and compare with other months and other vehicles.

3—Monthly Summary of Fleet. This form is a very simple one to understand, it being a recapitulation of the Truck Day Sheets for all trucks in the fleet, made up at the end of each month. This also is computed on the monthly basis and finally recapitulated at the end of the year.

4—Daily Repair, Stock Room and Maintenance Report. In order to keep track of each vehicle's maintenance expense, some form is necessary which will supply the information to be inserted on the Truck Day Sheet for the items of repairs, overhauling, mechanic's time, washer's time, greaser's time, etc.

The way in which this is taken care of varies a great deal from one concern to another simply because every concern has a different method of having this work done. Regardless of whether inspections, adjustments, repairs, washing, greasing and oiling are done by drivers, helpers, employed mechanics or by an outside source, the point to remember is that all time charges, materials, parts or invoices should be charged individually against the vehicle for which the work was done.

When service such as this is done on the outside, it is a simple matter to request that invoices be itemized according to the vehicles and then entered on the Truck Day Sheet. Work done by the driver or helper is often not charged against the vehicle excepting the materials used, inasmuch as this is included in the item of wages.

The concern that operates its own service and garage facilities will need a separate bookkeeping system for this, which will be very much the same as an accounting system for a business for itself. For our present purpose in this article, there is no need to complicate the subject by attempting to bring in the cost keeping requirements of a private garage and repair shop other than to mention briefly the following essential forms.

(a)—Mechanic's and Helper's Time Card. This is a simple time sheet daily record, giving the amount of time spent in repair on each vehicle with materials used. The materials entered here are later checked with the Daily Stock Room Report (b), the price computed and charged in a lump sum with the time taken for the job on the Truck Day Sheet.

(b)—Daily Stock Room Report. Parts, supplies and materials taken out of the stockroom by workmen are entered on this form. Many concerns carry this as a perpetual inventory by means of which they can know at all times, how much stock is on hand and when stock needs to be replenished.

(c)—Job Ticket. Overhauls, lengthy repairs and painting, when done in the company's own garage are best handled by job tickets. This is usually a manila card about 9 by 12 inches on which are en-

tered all items of time and materials chargeable against a certain job on a vehicle.

(d)—Maintenance Chart. While this is not a part of the cost keeping system, it is mentioned here while speaking of garage forms because the writer urgently recommends it to any concern that handles its own service work. There is a maintenance chart for each truck under this plan and this may be conveniently placed on the wall of the garage in the vehicle's customary parking position. When oil has been changed in the motor, when parts of the truck have been greased or oiled, inspections made of the chassis, tires, etc., when water has been added to the battery and when carbon has been removed, valves ground, etc., this is marked on the maintenance chart. In this way, neglect of maintenance, which is so essential to economical operation, is avoided and periodical attention to these details is provided for in a systematic way.

5—Tire Record. This is an optional form, not entirely necessary, but one which many concerns are finding very valuable. The tire record usually is in the form of a history card, there being one card for each tire in service and it shows the amount of service each tire has given and the cost per mile from the time it is purchased until it is scrapped. In detail, the garage superintendent enters the time it is bought, the different cars on which it was used during its life, the wheel it is used on, and the mileage of each wheel. The cost of the tire is also entered and at the end of its life, the cost per mile, including repairs, is obtained. This record is not only valuable in encouraging drivers to keep tire costs down, but it helps to make the cost system more accurate in so far as this item is concerned. Moreover, it supplies an excellent method of comparing different makes of tires and determining which the concern can use more profitably.

The above suggestions on cost keeping forms provide what is, in the writer's opinion, the best skeleton outline that can be offered in such a general way, considering the great difference in conditions from one concern to another. An individual study based on this as a guide should be very productive in reaching the ideal system for an individual business.

Cost Keeping Pays Its Way

Some concerns try to make too hard a job of keeping delivery cost, bringing in many difficult ideas and methods with the hopes of getting additional or more precisely accurate information. The more we observe some of these systems, the more we are convinced that the most satisfactory system is the one which is, first of all, as simple and as fool-proof as it can be. That is why the writer has suggested here just the very simplest form of cost-keeping which will serve the purpose satisfactorily.

It must not be assumed that the detail necessary to keep records on trucks is just an added curse to the whole delivery idea. Many truck users have told me that they feel this way about it and I have tried to point out to them that the right kind of a record system will pay its own way in the economies.

The owner who keeps a constant check on his truck operation will find that this helps reduce costs in more ways than one. With itemized records before him from day to day, he will find that many leaks will be discovered and ways for improvement suggested that would occur to him in no other way. As an example of this, let us see briefly how a daily check would work to help reduce fuel cost.

A truck in good condition will operate under normal loads and over average roads at, say, ten miles to the gallon of gas. This will be shown on the daily record. But a constant inspection of this will disclose that gradually, or perhaps suddenly, only five or six miles are being obtained for each gallon of gas. The record proves a barometer that gives warning that something is wrong and that an inspection is required at once.

Sometimes dragging brakes may be responsible; again it may be that the carburetor requires readjustment. Whatever the fault is, attention is called to it, the trouble located and rectified, and the gasoline consumption reduced materially.

If this daily check is not made and watched, the trouble goes unnoticed until some time later, when the unusually large operating costs are questioned or there is a general overhauling of the truck.

In practically all cases where too much gas is being used, there is a corresponding wastage of oil. When the mixture is too rich, the oil is being diluted and its lubricating value lost. Where brakes drag, more power than should be required is used with the extra consumption of oil.

Keeping the gasoline mileage records and watching them will save a truck owner a substantial amount during the year. Also, it will be of value to him in getting a true picture of what his trucks are costing him to operate. It is valuable to owners of fleets of trucks, as it shows what make of trucks are the most economical over a period of service.

Babbitt can be used to advantage as a seat for anti-friction bearings. Such mounting is inexpensive, durable, and amply strong for most purposes. By employing babbitt, the bearing is readily fixed in the exact position desired. The method of procedure is so much like that followed in babbitting a plain bearing that it is unnecessary to go into details. Follow the usual babbitting directions and use your good judgment and no trouble should ever be experienced. Babbitt has the advantage over machined housings and bushings in that it may be removed if necessary, remelted, and recast, without great expense.—Schaphorst.

Lessons in Paper Making

Lesson XVIII—The Structural Formation of Paper (Part 2)

By HARRY WILLIAMSON

Class Instructor, Champion Fibre Co., Canton, N. C.

This article is the eighteenth of a series of lessons in practical paper making, appearing each month in The Paper Industry by arrangement with the Champion Fibre Company, Canton, N. C. These lessons are a part of the general education course, conducted by this company under the direction of Mr. J. Norman Spawn, educational director.

SINCE the publication in the December issue of Part 1 under the above title, the writer has received many letters of comment. Many of these are complimentary, a few ask for further details, and one offers adverse comment by saying, "It is impossible to define the limits of machine room operation as distinct from beater room operation." All are welcome.

Adopting the manner of the radio announcer, please do not hesitate to let us know about your reception. If you believe the static confuses the melody, we will be glad to discuss with you the debatable points. There are many of these in our craft of papermaking. Local conditions play such an important part. The quality of "furnish" used, water conditions, etc.

To detail the constituent qualities, chemically and physically, of every kind of fiber used to produce every kind of paper made, under each separate set of local conditions, is far beyond the powers of this writer. Such qualities are not even adequately covered by the whole bibliography of papermaking.

The operation of a fourdrinier machine making any quality of paper is, however, confined within the limits of the two phases herein discussed—**the physical crossing of the fibers and the cohesive binding of the fibers after they are so woven.**

Strength

Because the hydration of fiber is generally credited, and with certain limitations rightly so, with the resultant strength in the finished paper, a discussion of the strength factor in the structural formation of paper will best illustrate the second of our two phases, the cohesive binding together of the fibers.

The equation, **length** plus **hydration** equals **strength** is perfectly true, yet this same equation at once points out very definite limitations in fourdrinier operation. For example: If we imagine the longest possible fibers, so beaten to produce the ultimate in hydration **without destroying the cellular walls of the fibers,** then form these fibers into a sheet, **each fiber laying perfectly parallel with the others, the length in the direction of the machine flow,** we would have a sheet enormously strong **across** the grain. Despite the cohesive binding of **hydrate,** such a sheet would be comparatively weak and **split easily with the grain.**

A piece of birch bark is a typical example of our imaginary sheet. A very strong man would encounter difficulty in tearing birch bark **across** the grain, yet a three months' old baby could SPLIT the same piece easily **with** the grain. In our exaggerated example, the point of contact between fiber and fiber would be solely **longitudinal,** and entirely dependent for the maintenance of such contact on the binding qualities of the hydrate. In other words, to split the sheet **with** the grain, it would only be necessary to separate the hydrate between any pair of fibers, therefore, **the physical length of the fibers in relation to bursting strength, with the grain, would equal exactly nothing.** We, therefore, find that besides length and hydration, we must add **multiple points of contact between fibers** to our equation if we are to realize **equal ratio of strength in all directions of tear.**

In this connection, we must remember that standard testing machines are especially designed to test the ratio of strength both with and across the grain. The Mullen Test is applied to a **circular area** of the finished sheet. The Schopper tensile test is applied to strips cut from the sheet, with and across the grain. For ultimate strength, therefore, we must not depend solely on the resistance to separation offered by the cohesive qualities of the hydrate, we must also so form our sheet that it is necessary to **rupture the fibers** themselves to effect separation.

To obtain the ideal result, we must go still a step further. Assuming length, hydration and multiple **points** of contact between the fibers, we must still remember that such **points of contact** depend **entirely** for their cohesion on the binding qualities of the hydrate. Hence, we see the necessity, if we desire to produce the **strongest** possible sheet, to create multiple **interlocking** points of contact between the fibers. That is, we must form a **woven** sheet of fibers so that the cohesive qualities of the hydrate will be **evenly dispersed throughout the whole structural area, length, width and thickness of the sheet.** This **interlocking** of the length of the fibers is primarily effected in the first phase of the formation on the

wire. There is, however, a further factor to be considered.

Some fibers cannot be beaten out into fibrillae, and, of course, such fibers can be woven as to their length only. Other fibers can be made to produce fibrillae, a number of minute tendrils projecting from the ends, and in some cases from the body of the fiber proper. These fibrillae form increased surfaces which of themselves attract the very finest particles of water charged fiber.

Of the first kind, Manila fiber is perhaps the most outstanding example. Of a great length, yet not excessively so, this fiber can be conveniently operated without having to be mechanically reduced. As the Manila fiber will not produce fibrillae, however, there is no aid to be expected in the weaving together from numberless clinging minute tendrils. The interlocking will have to be according to the length of the fibers only, and as it is difficult to obtain good formation from long fibers by fourdrinier operation, we are compelled to recognize this factor as a clearly defined limit in such operations.

The absence of fibrillae is equal to a corresponding loss in hydration. This loss is not felt when preparing Manila fiber, however, because Manila has a high hydration capacity readily developed. The cohesive binding of the easily created hydrate thoroughly dispersed through the structural formation of the sheet by the adequate interlocking of the fibers will become a binding factor indeed as soon as the newly formed sheet comes under the influence of the atmospheric pressure exerted on the paper by the suction applied to the flat boxes. This pressure, and the succeeding pressure applied by the press rolls, while the sheet is still in a wet state, performs a much more important duty than that of merely removing water from the paper. It is the pressure which compels the hydrate to become adhesive to the solids in contact with it.

In practical application, the knowledge of the importance of this pressure in relation to strength leads us to quote the development of hydration in terms of "inches of vacuum register on the couch roll and flat box gauges." We must remember, however, that "inches of vacuum register" is only a sign, a mark to guide us as to the hydration and formation of that particular sheet under the conditions existing at that moment. It does not of necessity follow that the next time we make that same grade and basis weight of paper we must operate with exactly the same number of inches vacuum register.

If we also remember that hydration is the forming of a colloidal jell as an envelope surrounding each fiber, whose purpose is to act as an adhesive to a similar envelope on each adjacent fiber, thus becoming the glue which holds the pieces of wood together, we will be less liable to commit the error of thinking we can eliminate the wood and create strength by simply retaining the glue. In other words, we must not carry the hydration of the fibers to excess. The cellular walls of the fiber should still retain their structure, and the core of the fiber should still be unmodified cellulose.

The simile of a carpenter glueing two pieces of wood together can be carried a little further. He first dresses the proposed join to the desired size, length or shortness. Then he scarifies or roughens the surfaces to be joined together, fibrillae. To make sure the pieces of wood will remain glued exactly as he set them, he applies a clamp, pressure.

We quite frequently use the word "formation." Formation as distinct from "finish" is simply the appearance of the sheet when we look through it with a strong light behind the sheet. Very broadly we can define formation by three terms, "well closed," "wild" and "very wild." Anything beyond that could be christened "junk," adjectives to suit the individual temperament.

Having a clear idea of the two phases of formation on the fourdrinier wire, we are in a position to discuss the conditions applicable to each or both of these phases which can and do define the limits within which a fourdrinier machine can be operated.

The "physical crossing phase" is primarily controlled by the volume of water, as a suspending medium, it is possible to use. This volume is in turn controlled by the speed of the machine and the degree of hydration developed in the fibers. The heavier the basis weight made, the slower the speed of the machine. As the flow weight of the mixed volume delivered from the slice to the wire must not exceed the speed of the wire, it follows that the slower the speed the less the volume of water used. On the extremely heavy weights, we sometimes find this necessary curtailment of water is a distinct impediment to screening the long fiber, and as a consequence, the fluctuation of weight by the ebb and flow of the screens requires the constant attention of the machine tender.

The "look through" of such heavier papers is usually of the class "wild," and this is caused more by the sluggishness of the delivery system and the inadequate fulfillment of the "physical crossing phase" rather than the actual length of the fibers. This is easily proven. If we speed up the machine to accommodate a medium basis weight, we can leave the fibers the same length, the jordan treatment the same, and by simply adding the water necessary to meet the increase of speed, we get a much better "look through" and incidentally a better proportionate strength test. The stronger papers are made with a higher slice comparatively than the finer papers of shorter fiber.

This is done in order that a greater depth of the mixed volume may be delivered from the slice. Depth of volume equals greater opportunity for the successful crossing of the fibers, and such slice operation is ideal for strong papers providing the machine

is not running on very slow speed. A high slice with a low depth of mixed volume behind it means weak and poorly formed edges. A low slice with long fibers will cause **rolling on the wire.**

The initial velocity of delivery will actually force the long fibers from suspension, then the water will race over the top of the inadequately formed sheet. The "look through" of such a sheet would be "very wild" and breaks would be caused by lumps. It is not of much use to wash up the machine for this type of lump, however, they are made after the slice delivery by the friction on the long fibers of the difference in the speed of the wire underneath the fibers and the speed of the water on top of the fibers.

Although we have discussed only the difficulties of flow speeds on the heavy basis weights, in other words, the **low speed limit in relation to water volume,** there are also difficulties in relation to the same factor on the higher speeds. A point can be reached where the tremendous initial slice velocity on high speed makes it almost impossible to control the resulting currents. Hence, if **quality,** to keep to the particular quality specified in this discussion, **strength** is desired, we find it necessary to cut down the speed to a point where the mixed volume can be controlled. Of course, the fourdrinier machine can be arranged to accommodate either of these two extremes, **but the same machine would be a wonderful creation if it could be made to accommodate both extremes by the same arrangement.**

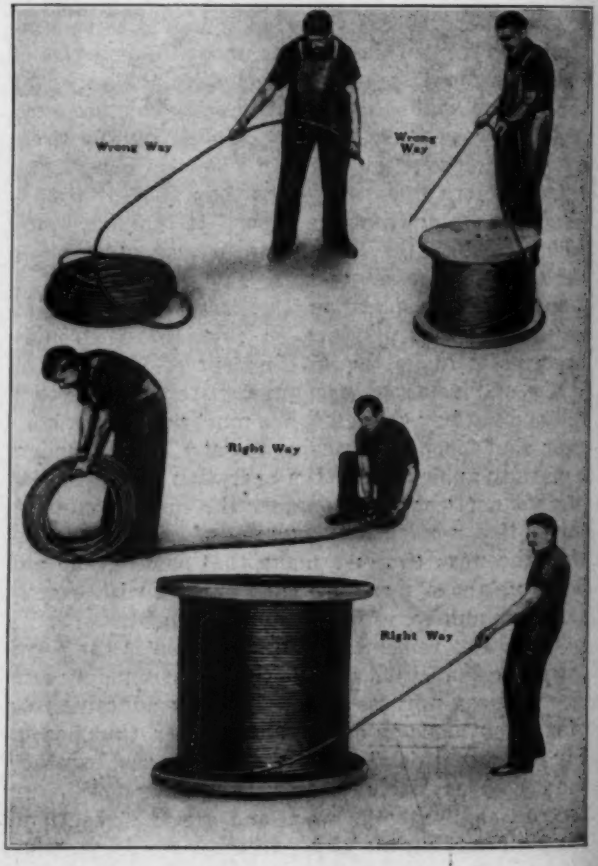
The very necessity to arrange a machine to produce special papers is the clearest evidence of the limits of fourdrinier operation. In relation to the cohesive binding phase, fourdrinier operation must recognize its limits in the amount of drying surface at the operator's disposal, and also the amount of resistance to drive strain we can impose on the wire by the application of suction.

To again use the heavy basis weight sheet as an example. The density of the fibers alone, inadequately formed as they are, of a very heavy sheet will offer nearly enough resistance to the passage of air through the sheet to the suction boxes, without adding the resistance of hydration. Yet we realize the necessity to hydrate the fibers if the full qualities are to be developed. We can only offer such treatment conformable with the mechanical limits imposed upon us. In other words, if we developed the hydrate in the fiber for a basis weight 24x36—130 pounds the same as we would for even a medium weight like 24x36—50 pounds, we would be unable to drive the wire if we permitted the flat boxes to operate, and if we do not permit the flat boxes to operate, the sheet would never pass the first press without crushing. If we try to imagine a sheet 24x36—100 pounds, prepared for **glassine** (quite a vivid stretch of imagination I admit), we will fully realize the **limits** of fourdrinier operation in relation to the second phase of formation the **cohesive binding qualities of the hydrate.**

The structural formation of paper is no exception to the rules governing the erection of any other kind of structure. It must have a good foundation, a strong base if it is to survive, and the quality of the pulp used, and the proportion in which it is used is indicative of the life expected of the paper produced. Some structures, jails for instance, are erected solely with a view to strength. So are some papers. Others, besides utility, present a certain artistry. These things constitute the super-structure erected over the base, and with a few of these we will deal in a later article.

How to Uncoil or Unreel Wire Rope

WIRE ROPE is ordinarily shipped and received either in coils or in reels. When uncoiling or unreeling wire rope, it is very essential that no kinks are allowed to form. Once a kink is made, no amount of twisting or strain can take it out and the rope is unsafe for work. Never uncoil a wire rope as might be done with a rubber hose or manila hemp rope. Lift the coil to its edge and unroll the coil, allowing the rope to lie flat until used. Contrasting methods are shown in the following reproduction.



Current Thought by William Sibley

Research

BEFORE me are two dictionaries; one published in 1884, the other in 1927. In defining "research" the earlier book limits itself to five words: "Diligent, protracted investigation; studious inquiry." The later work gives exactly the same definition, but with this addition: "2. Specif., in science, a systematic investigation of some phenomenon or series of phenomena by the experimental method."

The lexicographers give greater evidence of progress than do some manufacturers. They at least have recognized trends and present day tendencies.

Last summer I visited the plant of a candy manufacturer. This large factory annually turns out hundreds of thousands of candy bars and literally tons of marshmallow. During my visit, I was keenly interested in the splendidly equipped chemical laboratory. The ingredients of candy, and particularly mallow, it seems, are subject to wide fluctuations in quality, and the maintenance of a chemical laboratory was necessary out of interest for uniformity. After having had the laboratory operation and chemist's duties explained to me, I asked, in all my ignorant innocence: "Of course you use the facilities of the laboratory to help develop new, unusual and tasty combinations and bars?" Whereupon the vice-president looked at me, then at the chemist—then frankly blurted: "That's a good idea! Hereafter, Harry, it will be a part of your job to develop new products."

A 1927 dictionary might have returned that candy manufacturer very real dividends. Incidentally, that chemist has since produced a new and unique candy bar that holds great promise of popularity.

Ignorance, or rather unmindfulness, (which is an even greater crime) of the value and province of scientific research is not restricted to the candy industry. It is to be found among all industries, our own included.

It is true, and exceedingly creditable, that many of the chemical and physical laboratories in our mills have been put to tasks other than their specific duties with quality control. Scores of instances come to mind of the successful and highly profitable ventures undertaken by paper mill research men.

At Eaton, Crane and Pike's for instance, the entire 1927 advertising budget was expended in accordance with extensive research work along the lines of market determination. Recognizing that public taste and popular demand may change in stationery as in automobiles or radio, the Pittsfield folks entered upon a comprehensive study of the habits of the consumer and of distribution channels. In the single "retail" division of this exhaustive study an effort was made to discover the retailer's viewpoint on such facts as the extent to which customers purchase social stationery by name or brand, the principal brands called for, and the relative popularity of various sizes, colors or shades of stationery.

Similar and additional information was obtained from the consumer, the jobber, the salesmen, and the district managers. With such a mass of valuable data in hand—which required five months to gather, but which covered every conceivable angle of merchandising and distribution—it was a simple matter to direct the advertising appropriation into such channels as would yield the greatest return.

At the American Writing Paper Company the laboratory has two functions. The primary purpose is, of course, to maintain quality and determine standards; but the secondary, and quite as important function is the development of paper for new uses and the discovery of new uses for paper. Just two of the many results achieved at the Holyoke laboratory were a special type of paper for wrapping film negatives and a stock for milk bottle caps. With the former, the composition had to be chemically resistant to prevent film fogging and yet have sufficient strength to withstand the wrapping and winding strain. In the stock for milk bottle caps, the features of snap, resilience and compactness were prime requisites, while the paper must have the ability to absorb some paraffin, but not too much. In addition, the color of the stock must convey the idea of sanitation.

Not long ago a member of the laboratory staff of the Eastern Manufacturing Company of Boston, employed the basic principles of a radio receiving set

to develop a device which would automatically weigh any material passing through the mechanism in continuous web form. In addition to actually weighing the continuous web material by radio, the device records and controls the unit weight of all materials delivered to it.

The principles underlying this unusual development, as I understand it, are those of the tuned radio circuit. The continuous sheet of paper pulp passes between two parallel metal plates which, in themselves, act as a condenser in the receiving circuit. Naturally, any variation in the weight of the material would instantly change the capacity of the condenser and affect the response of the circuit to a wave of controlled frequency. With this principle developed it was a comparatively simple matter to connect a circuit actuated meter, which might in addition to recording, operate machine controls by suitable relays.

Take Advantage of the Outside Viewpoint

In the recitation of these three instances of the value of scientific and physical research, perhaps I have told nothing that is not already well known to the industry. But I certainly have told enough to indicate the necessity for keeping ever on the alert for that which will make our business of producing paper easier and more profitable. If a paper mill laboratory technician can develop a radio actuated device that will weigh, record and control a continuous web of paper (which device doubtless has extreme value to manufacturers of such products as rubber, chewing gum, coated fabrics, or any other product that forms itself into a continuous sheet) then it must be apparent that other technicians working in fields entirely foreign to ours might develop something that would be of far-reaching value to us.

Indeed, many of the greatest instruments we now have were inventions of strangers or amateurs. The automobile wasn't invented by the owner of a livery stable. Rather, Selden, a legal advisor and attorney, in no way connected with transportation, made the first "benzine buggy." For countless centuries, seamstresses and tailors were wont to sit cross-legged and laboriously sew with the needle, and doubtless would have continued so to sit had not a machinist by the name of Howe developed the sewing machine. A hardware manufacturer by the name of Burke, not a quarryman or mine superintendent, invented the rock crusher. Whitney, a boy who worked his way through Yale,—not a textile mill owner—invented the cotton gin.

Edison, a man who couldn't pass an entrance examination to a high school, developed the phonograph—not a master in acoustics or a professor of physics. Stratigraphic geology was discovered by a surveyor named William Smith, not a geologist. Burbank, when he was yet a youth inspired by the Darwinian theory, developed new plants—not studied horticulturists or botanists. Kant, a professor of logic, beat generation after generation of astronomers to the "nebular hypothesis." Bell, a teacher of the deaf and dumb, invented the telephone —not an electrical engineer or professor of physics.

Never in all history has a "dirt" farmer contributed materially to the mechanization of agricultural operations. Very few manual workers ever develop anything that will lighten their toil. Extremely few implements of warfare were ever invented by soldiers. To become too familiar with or engrossed in one's task means to lose the perspective, and the ability to affect the great changes necessary to progress. Necessity is not the mother of invention. Not even its grandmother.

Brains are brains wherever found. And because worthy brains are working in countless directions in every industry (the patent office registers over 80,000 devices a month), we have need for alertness and vision in a measure never before conceived.

In an endeavor to gain the valuable outside viewpoint, many paper mills put their perplexing problems up to a commercial laboratory. Some do this entirely; rather than incur the installation and maintenance expense of an individual laboratory. Others, even though well equipped, avail themselves of commercial laboratories merely for the purpose of gaining the viewpoint of the technician who is sufficiently free of details and technical knowledge as to see the problem as a whole. That such practice is profitable, is shown by the records of one commercial research organization which illustrates how one company was enabled to eliminate evaporation of an expensive chemical, while a second was aided in the matter of machinery arrangement for a plant that is now producing, by a new process, cellulose from the hulls of rice.

It is not only proper and profitable, but absolutely necessary, to maintain a research laboratory for the maintenance of product quality and uniformity. Indeed, one New York bank recently made the statement that they felt it inadvisable to loan money to a manufacturing concern that was not equipped to do proper research work.

Individually maintained laboratories should accept, in addition to their primary work, the task of determining cost analysis and control, increasing plant efficiency, developing new products and discovering new uses for present products.

The outside, broader viewpoint, which is of inestimable value, may be had, first, through the employment of reliable, worthy, commercial laboratories, and second, by keeping abreast of trends and awake to developments that may have even a remote possibility of adoption or adaptation.

While it may be an act of charity to give employment to men who have been maimed, you are doing a greater service in preventing the maiming of men.
—Making Paper

123 Mills Entered in 1928 Contest

The Paper Industry Fourth Annual Safety Contest Includes 26 New Participants

	ENTRANT	MILL	LOCATION
Group A	Bogalusa P. Co., Inc.	Bogalusa	Louisiana
	*Can. Int. Paper Co.	Gatineau	Quebec, Can.
	Champion Coat. P. Co.	No. 1	Hamilton, Ohio
	Champion Coat. P. Co.	No. 2	Hamilton, Ohio
	Contin'tal P. & B. Mills	Rumford Falls	Rumford, Me.
	Dill & Collins Co.	Philadelphia	Pennsylvania
	International P. Co.	Chisholm	Maine
	International P. Co.	Niagara Falls	New York
	Kimberly-Clark Co.	Kimberly	Wisconsin
	Kimberly-Clark Co.	Falls	Niagara Falls, N.Y.
	Kimberly-Clark Co.	Niagara	Wisconsin
	Kimberly-Clark Co.	Badger-Globe	Neenah, Wis.
	Laurentide Co. Ltd.	Grand' Mère	Quebec, Can.
	Marathon P. Mills Co.	Rothschild	Wisconsin
	Mead Pulp & P. Co.	Scioto	Chillicothe, O.
	*Minn. & Ont. Paper Co.	Inter'l Falls	Minnesota
	*Minn. & Ont. Paper Co.	Kenora	Ontario, Can.
	*Minn. & Ont. Paper Co.	Ft. Frances	Ontario, Can.
	Nekoosa-Edwards P. Co.	Port Edwards	Wisconsin
	Northern Paper Mills	Green Bay	Wisconsin
	Northwest Paper Co.	Cloquet	Minnesota
	Pacific Mills, Ltd.	Ocean Falls	British Col., Can.
	Powell River Co., Ltd.	Powell River	British Col., Can.
	*River Raisin Paper Co.	Monroe	Michigan
	St. Maurice Valley C'n	Belgo Div.	Shawinigan Falls, Quebec, Can.
	W. Virginia P. & P. Co.	Luke	Maryland
Group B	Amer. Writing P. Co.	Beebe-Holbrook	Holyoke, Mass.
	Amer. Writing P. Co.	Crocker	Holyoke, Mass.
	Amer. Writing P. Co.	Riverside	Holyoke, Mass.
	Bird & Son, Inc.	East Walpole	Massachusetts
	*Bryant Paper Co.	Bryant	Kalamazoo, Mich.
	*Chemical P. Mfg. Co.	Holyoke	Massachusetts
	Cornell Wood Prod. Co.	Cornell	Wisconsin
	*Crocker-McElwain Co.	Holyoke	Massachusetts
	Escanaba Paper Co.	Escanaba	Groos, Mich.
	Falls Mfg. Co.	Oconto Falls	Wisconsin
	Finch, Pruyn Co., Inc.	Glens Falls	New York
	Fort Howard Paper Co.	Green Bay	Wisconsin
	*Fox River Paper Co.	Fox River	Appleton, Wis.
	Great Western P. Co.	Ladysmith	Wisconsin
	Hollingsworth & Vose Co.	West Groton	Massachusetts
	Hollingsworth & Vose Co.	East Walpole	Massachusetts
	International P. Co.	Glen No. 5	Berlin, N. H.
	International P. Co.	Piercefield	New York
	Kimberly-Clark Co.	Spruce Falls	Kapuskasing, Ont.
	Marinette-Menominee Paper Co.	Marinette	Wisconsin
	Mead Fibre Co.	Kingsport	Tennessee
	Michigan Paper Co.	Plainwell	Michigan
	Nekoosa-Edwards Paper Co.	Nekoosa	Wisconsin
	Port Huron Sulphite & Paper Co.	Port Huron	Michigan
	Racquette River P. Co.	Potsdam	New York
	Rhinelander Paper Co.	Rhinelander	Wisconsin
	*Riverside P. & P. Co.	Appleton	Wisconsin
	Scott Paper Co.	Chester	Pennsylvania
	Southern Int. P. Co.	Bastrop	Louisiana
	St. Croix Paer Co.	Woodland	Maine
	Strathmore Paper Co.	No. 1 Mittineague	Massachusetts
	Strathmore Paper Co.	No. 2 Woronoco	Massachusetts
	Thilmany Pulp & P. Co.	Kaukauna (Paper)	Wisconsin
	Thilmany Pulp & P. Co.	Kaukauna (Sulphate)	Wisconsin
	*Warren Mfg. Co.	Milford	New Jersey
	Wausau Sul. Fibre Co.	Mosinee	Wisconsin

	ENTRANT	MILL	LOCATION
Group C	Adams Bag Co.	Chagrin Falls	Ohio
	Amer. Writing P. Co.	Albion	Holyoke, Mass.
	Amer. Writing P. Co.	Dickinson	Holyoke, Mass.
	Amer. Writing P. Co.	Lynden	Holyoke, Mass.
	Amer. Writing P. Co.	Mt. Tom	Holyoke, Mass.
	Amer. Writing P. Co.	Nonotuck	Holyoke, Mass.
	Amer. Writing P. Co.	Parsons	Holyoke, Mass.
	*Amer. Writing P. Co.	Platner-Porter	Unionville, Conn.
	Amer. Writing P. Co.	Wauregan	Holyoke, Mass.
	*Amer. Writing P. Co.	Windsor	Windsor Locks, Conn.
	Bemis Bros. Bag Co.	Peoria	Illinois
	Bergstrom Paper Co.	Neenah	Wisconsin
	*Beveridge Paper Co.	Indianapolis	Indiana
	Bird & Son, Inc.	Phillipsdale	Rhode Island
	*Bryant Paper Co.	Milham	Kalamazoo, Mich.
	*Bryant Paper Co.	Superior	Kalamazoo, Mich.
	*Crystal Tissue Co.	Middletown	Ohio
	Defiance Paper Co.	No. 1	Niagara Falls, N.Y.
	Defiance Paper Co.	No. 2	Niagara Falls, N.Y.
	Defiance Paper Co.	No. 3	Niagara Falls, N.Y.
	*Diam. State Fibre Co.	Bridgeport	Pennsylvania
	Franklin B. & P. Co.	Franklin	Ohio
	Gardner & Harvey Co.	No. 1	Middletown, Ohio
	Gardner & Harvey Co.	No. 2	Middletown, Ohio
	Gardner & Harvey Co.	No. 3	Middletown, Ohio
	*Hawthorne Paper Co.	Kalamazoo	Michigan
	International P. Co.	Liverm'e Falls	Maine
	International P. Co.	Montague	Turners Falls, Mass.
	International P. Co.	Riley	Maine
	International P. Co.	Webster	Orono, Maine
	International P. Co.	Winnipiseogee	Franklin, N. H.
	Itasca Paper Co.	Itasca	Grand Rapids, Minn.
	Kimberly-Clark Co.	Atlas	Wisconsin
	Kimberly-Clark Co.	Neenah	Wisconsin
	*Lawrence P. Mfg. Co.	Lawrence	Kansas
	Lincoln Pulp & Paper Co., Ltd.	Lincoln	Merritton, Ont., Can.
	Lincoln Pulp & Paper Co., Ltd.	Lybster	Merritton, Ont., Can.
	Lincoln Pulp & Paper Co., Ltd.	Sulphite	Merritton, Ont., Can
	*Lowe Paper Co.	Ridgefield	New Jersey
	Marinette & Menominee Paper Co.	Menominee	Michigan
	Mead Pulp & P. Co.	Peerless	Dayton, Ohio
	Northwest Paper Co.	Brainerd	Minnesota
	Robertson P. Box Co.	Rockland	Montville, Conn.
	Sorg-Oglesby-Smith Paper Co.	Oglesby	Middletown, Ohio
	Sorg-Oglesby-Smith Paper Co.	Smith	Middletown, Ohio
	Sorg-Oglesby-Smith Paper Co.	Sorg	Middletown, Ohio
	Strathmore Paper Co.	No. 2 Mittineague	Massachusetts
	Strathmore Paper Co.	No. 1 Woronoco	Massachusetts
	Thilmany P. & P. Co.	Tissue	Appleton, Wis.
	Union Bag & Paper	Allen	Hudson Falls, N. Y.
	Union Bag & Paper	Fenimore	Hudson Falls, N. Y.
	Union Bag & Paper	No. 5	Hudson Falls, N. Y.
	U. S. Gypsum Co.	Gypsum	Ohio
	U. S. Gypsum Co.	Lancaster	Ohio
	*U. S. Gypsum Co.	N. Kans. City	Missouri
	U. S. Gypsum Co.	Oakfield	New York
	Upson Co., The	Board	Lockport, N. Y.
	*Waldorf P. Prod. Co.	St. Paul	Minnesota
	*Warren Mfg. Co.	Hughesville	Riegelsville, N. J.
	*Warren Mfg. Co.	Riegelsville	Riegelsville, N. J.
	*Warren Mfg. Co.	Warren	Riegelsville, N. J.

*Mills that were not in the 1927 Contest.

The Paper Industry 1927 Safety Contest

Accumulative Severity Rates of Mills in Group C., as of December 31, 1927

Participant	Mill	Rate	Participant	Mill	Rate
International Paper Co.	Riley	0	The Gardner & Harvey Co.	Mill No. 3	.25
Kimberly-Clark Co.	Neenah	0	Union Bag & Paper Corp.	Cheboygan Paper	.38
Lincoln Pulp & Paper Co.	Lincoln	0	International Paper Co.	Livermore	.49
U. S. Gypsum Co.	Gysum	0	Union Bag & Paper Corp.	Allen	.50
The Upson Co.	Board Mill	.05	Lincoln Pulp & Paper Co.	Lybster	.56
International Paper Co.	Winnipiseogee	.09	Union Bag & Paper Corp.	Mill No. 5	.57
Kimberly-Clark Co.	Atlas	.10	Itasca Paper Co.	Minnesota	.76
International Paper Co.	Webster No. 9	.12	Union Bag & Paper Corp.	Cheboygan Sulphite	.80
The Adams Bag Co.	Chagrin Falls	.14	Union Bag & Paper Corp.	Fenimore Sulphite	.81
The Gardner & Harvey Co.	Mill No. 1	.15	Mead Pulp & Paper Co.	Peerless	.94
Bergstrom Paper Co.	Neenah	.17	The Northwest Paper Co.	Brainerd	3.03
Kimberly-Clark Co.	Badger-Globe	.19	Union Bag & Paper Corp.	Fenimore Paper	3.13
The Gardner & Harvey Co.	Mill No. 2	.20	Lincoln Pulp & Paper Co.	Sulphite	3.86

Group A—Nekoosa-Edwards Paper Co. Combined Mills .84

Group B—International Paper Co. Niagara Falls .32

Canadian Pulp and Paper Engineers Meet

Technical Section of the Canadian Pulp and Paper Association Has Well Attended Meeting—Valuable Papers are Read and Discussed

UNDER the chairmanship of A. P. Costigane, of the Ontario Pulp and Paper Makers' safety Association, business celerity and dispatch featured the sittings of the Technical Section of the Canadian Pulp and Paper Association, which met in annual session at the Ritz-Carlton Hotel, Montreal, on Wednesday and Thursday, January 25 and 26.

Welcomed by President Wilson

The proceedings were opened with an address by L. R. Wilson, president of the Canadian Pulp and Paper Association, who expressed the pleasure it afforded him to welcome the Technical Section, saying it was his hope that the meeting would be one of the most instructive and profitable in its history. He was confident, he said, that on account of the completion of the Pulp and Paper Research Institute at McGill University the Technical Section would in the next few years experience a greater development than any other division of the general association. The opportunity for technical research would be there and it was up to the Technical Section to make the fullest use of it.

Sections to Be Consolidated

Mr. Wilson reminded those present that the Research Section of the association had come into existence a few years ago for the purpose of developing laboratory work in cellulose, and now that the building was completed and would soon be in operation he intended to recommend that the Research and Technical Sections be amalgamated, so that the operation of the laboratory at McGill University would be more directly under the control of the Technical Section.

Chairman Costigane said he could not add anything to what Mr. Wilson had said. He was glad to see such a good attendance and hoped that the attendance at future sittings would not be smaller, but very much larger.

To Study Fuels

Secretary Edward Beck then read the minutes of the last annual meeting, interpolating a statement to the effect that $12,000 had been raised for the support of a new chair of Fuels and Fuel Technology at McGill University, following a recommendation by the Technical Section to the Canadian Pulp and Paper Association that an annual grant of $1,000 be made for a period of four years. While the executive board of the parent association had endorsed the proposal they did not vote the money outright, but had left it to the discretion of the individual members.

Sales of Textbooks

T. L. Crossley made a suggestion that R. S. Kellogg be asked to report on the sale of textbooks and that Mr. Stephenson be requested to report on the progress of revision of the volumes.

Mr. Kellogg accordingly submitted the following statement regarding sales and condition of the textbook funds. He said:

"There was a total sale during 1927 of 2,574 volumes of the textbooks; 280 copies of Vol. 1; 279 of Vol. II; 1,055 of Vol. III, which indicates the sale of the revision of Vol. III; 482 copies of Vol. IV, and 478 copies of Vol. V. The total sales from the beginning to December 31, 1927, have been, of Vol. I, 3,311; Vol. II, 2,605; Vol. III, 4,749; Vol. IV, 3,630; Vol. V. 2,791—a grand total of 17,086, which indicates a satisfactory sale.

"From January 1, 1927, until yesterday, there was expended by the committee from the United States funds $582.83, which cleans that out; from the original Canadian funds, $265.15, which cleans that out; and from the royalty fund $2,349.12, making a grand total expended by the committee during that period of $3,197.10.

"The committee has to its credit in the royalty fund in unexpended balances, $721.43 in cash; it has securities amounting to $7,000 par value, which cost $6,934.74, averaging a little better than 4½ per cent income, so that the total resources of the committee are, in round numbers, $76,000."

Progress of Revision

After thanking Mr. Kellogg for his report, Chairman Costigane called upon Mr. Stephenson, who gave some details of the work of revising the volumes. He said it was proposed to treat Vols. IV and V as a unit, but to remove section VI of Vol. V to Vol. IV. This section treats of general mill equipment. An additional part on steam production and its use in paper and pulp mills was to be provided by George D. Bearce. To make a place for the transposition of material from Vol. V to Vol. IV, parts I to IV of the description of paper machines in Vol. IV would be moved over to Vol. V, which will add a new section to that volume and include some details concerning the manufacture of the various grades of paper.

Character of Revision Work

Mr. Stephenson exhibited the French version of Vols. I and II. In speaking of the character of the revision being done, he said that certain additions had been provided. In this way, the use of stationary digesters for handling waste papers would be described and mention would be made of the rod mill and one or two more recent designs of beaters. The section on "sizing and loading" had been rewritten with the help of Mr. MacNaughton and Mr. Crossley. A method of hydrogen-ion measurement and control would be included and there would be an entirely new treatment of "steam". The whole paper machine section in Vol. V is undergoing extensive revision and novelties will be introduced like the No-deckle device, new types of screens, and the Minton vacuum dryer. The section on paper coating in Vol. V had been rewritten by Edwin Sutermeister, of the S. D. Warren Company, with the approval of Norman Clark, the original author of the section.

Practical Assistance Wanted

In closing his remarks on revision of the textbooks, Mr. Stephenson invited the co-operation and aid of members of the two technical associations. It was, however, not sufficient to write to the editor and say, "You should have something on a certain type of, we will say, felt stretcher", but a sketch and description of that felt stretcher should be sent in for consideration by the editor, not the mere suggestion of it.

Chairman's Report

Chairman Costigane announced that his annual report had been printed for submission at the annual meeting of the parent association. He referred with gratification to the constant growth in membership of the Technical Section. At the close of the year the number of members in good standing was 213, as compared with 186 at the close of the previous year. The Technical Section anticipated a year of unusual interest and importance, in view of the completion of the Pulp and Paper Research Institute and its occupancy, which is expected to take place in the early spring. The fact that this building will provide a permanent home for all

of the association's activities would be a great advantage.

Funds of the Section

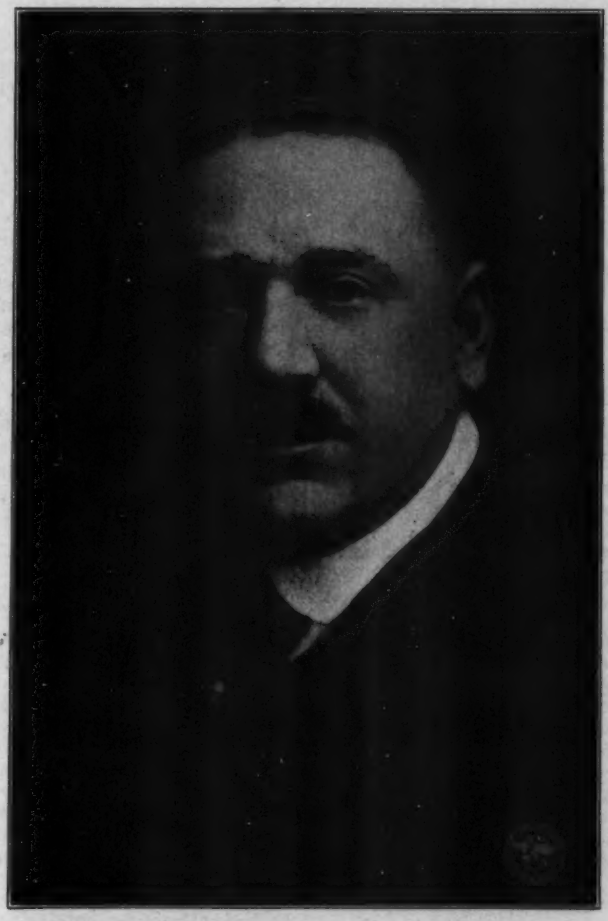
The next order of business was the report of the treasurer, made by Secretary Beck. This showed the receipts of the year, including a balance from the previous year of $638.70, to be $2,410.87. The disbursements amounted to $1,331.21, leaving a balance in the bank of $1,079.66. On motion the report was adopted as read.

Report on Standards for Pulp

Reports of standing committees were then called for, the first on the list being that of the Committee on Chemical and Physical Standards, E. P. Cameron, chairman. This was read by J. M. Payne, who announced that the actual report comprised about thirty typewritten pages. A standard method of preparing test sheets to determine the initial strength of paper pulp made up the bulk of the report. The method was one proposed by the Committee on Sulphite Pulp of T. A. P. P. I. and the Committee on Physical Standards of the Canadian Technical Section, and included blueprints of apparatus. The object of the method was described as a contribution toward the development of an international standard system of determining pulp strength. It is based largely on the methods adopted by the joint committee of the American Paper and Pulp Association, American Association of Woodpulp Importers and the Technical Association of the Pulp and Paper Industry.

Method of Testing Pulp

The method consists chiefly of a disintegration of the pulp, with only a very slight hydration, then forming the sheet on a sheet machine with such a volume of water that it takes the same length of time for the water to drain. The sheets are next pressed on a hydraulic press at a definite pressure to a certain moisture content. After pressing, the sheets are dried in an atmosphere of standard humidity and temperature conditions so that the rate of drying the sheets is as nearly the same as possible. The sheets are then tested for strength properties at the same atmospheric condition. The tests to be made on the sheet are not specified, but any official tests adopted as standard for paper can be applied.



Col. Charles Hugh Le Pailleur Jones, President-elect

New president of the Canadian Pulp and Paper Association. Elected January 27, 1928

Sampling Pulp Shipments

Rules are given for the sampling of pulp shipments according to the methods adopted by the joint committee previously named. In the report details are given of the disintegrating apparatus to be employed. It was stated that an efficient disintegrator had been developed at the Canadian Forest Products Laboratories in Montreal, details of which could be had on application.

Official Rules for Sampling

Minute directions are given for the preparation of the disintegrated pulp and subsequent testing of test sheets, together with an approved method of making these sheets. An appendix to the report contains the text of the official rules for sampling woodpulp adopted by the joint committee previously named. Included are notes on screening apparatus, various makes of hydraulic presses, methods for determining bursting strength, tearing strength, folding strength, and tensile strength and stretch of paper, as well as notes on the preparation of reports and a list of references in the literature.

Proposed International Meeting

The question of holding an international meeting either in North America or in Europe for the discussion and adoption of proposed standards was touched upon in the report of the committee. A meeting is contemplated in the spring, and E. P. Cameron, chairman of the committee, had suggested that it be held in Canada in order to avoid expense, but no acknowledgement of this suggestion had been received.

W. Boyd Campbell made a motion referring consideration of the subject to the incoming executive committee, which was seconded by Professor Keay and adopted.

Successful Operation of the Minton Dryer

E. B. Wardle, chairman of the Committee on Power and Drying, was then asked to present a report for his committee. The committee had paid special attention to possible avenues through which savings might be effected in the generation and use of steam. He said that the main point of interest to paper manufacturers that had come up during the past year was the successful commercial operation of the vacuum dryer invented by Ogden Minton. This, he said, marked an advance in the art of papermaking second only to the Fourdrinier machine itself.

Savings in Operations

The indications were, he said, that a saving of at least 25 per cent in steam consumption over the best operation of the ordinary atmospheric drying section should be obtained by the vacuum dryer. In addition, and this appeared to be a weighty statement, there was delivered from the vacuum dryer section at a temperature of 90° Fahr. about two tons of water per ton of paper dried, which could be used to advantage.

The Minton vacuum dryer was described by the inventor before the Engineering Institute of Canada on December 1, 1927, and a complete report of the meeting and discussions of the paper appeared in THE PAPER INDUSTRY for December, 1927, on page 1535.

Average Cost of Steam

For the first ten months of 1927, the average cost of steam per ton of newsprint paper in all of the Canadian mills reporting to the News Print Service Bureau was $4.27, the cost of steam per 1,000 lb. being 44c. The report of the committee gave the average cost of steam in mills having a combined

capacity of 2,220 tons a day, out of a total of 6,500 tons a day, as $5.69 per ton of paper. The lowest steam cost was given as $2.54 a ton, with steam costing 33c per 1,000 lb.

Increasing Use of Steam Accumulators

It was observed by the Committee on Power and Drying that there was a decided tendency in modern steam plant design toward furnace arrangements enabling the use of coals with a low fusing temperature of ash. This suggested the use of pulverized coal, which made it advisable to employ water-cooled walls and improved refractories. In new installations, the use of preheated air, with or without economizers was becoming almost universal. The committee also reported an increasing use of steam accumulators to smooth out peaks in steam demands; boiler control apparatus of the automatic type were also finding increasing use.

High Pressure Boilers and Bark Presses

It was to be expected that in a report on power and drying mention should be made of high-pressure boilers and extraction-type turbines for power and process steam. These were said to have advantages that many mills could well afford to consider. Improvements in bark presses received allusion. The use of bark presses enable mills to burn wood waste which is obligatory in some mills and advisable in many others.

Spent Liquor as Fuel

Reduction of waste sulphite liquor by evaporation to a point where it could be burned was said to have attractive possibilities, and this concluded the report of the Committee on Power and Drying.

Report on Wood Measurements

There was no discussion and the report of the Committee on Wood Measurement was called for. P. J. Murer, chairman of the committee, was absent, but the contents of the report were summarized by J. G. MacLaurin, a member of the committee, as follows:

1. The requirement for the ideal unit is that it be adaptable to practical methods for the measurement of all the pulpwood in a log or tree.

2. Obviously, to give a figure for all the wood, the unit must be in terms of solid wood—volume or weight.

3. "Feet board measure" and the "cord" are not units that enable a reliable determination of solid wood to be made; in addition, they are impractical for use at the mill.

4. The "cubic foot" is a definite and correct volumetric unit, and, moreover, it is more adaptable to use than any other measure. It is recommended that the association adopt it as their standard unit for pulpwood measurement.

5. "Weight" in terms of pounds of bone-dry wood is also correct, and, in many cases, very convenient to apply. While the committee consider that a volumetric measurement is superior to anything else, we realize that there are and will be cases where weight suits local conditions to much better advantage. Under such circumstances, we would recommend its use.

6. The use of these two units makes it very desirable that a practical method be found for converting from weight to its equivalent volume by computation. From an extensive investigation, your committee concludes that such a conversion can be done. They have found that the average weight of wood per unit volume of a large and representative quantity, is practically a constant; also, that there is little likelihood of the constant changing appreciably from year to year; and that the "green" or "bush" volume of the wood is still retained in the block pile—with the exception posgibly of a few individual blocks.

7. Therefore, if a cubic foot measurement be made at the mill, the equivalent weight of wood contained therein may be determined by computation. Similarly, if at the mill the wood is weighed, its equivalent green volume may be computed.

On motion of T. L. Crossley the report was adopted with an expression of thanks for the committee.

Bibliographies and Abstracts

For the Committee on Abstracts, J. N. Stephenson, chairman, described the work that has been done by Dr. Clarence J. West in the preparation of a bibliography of pulp and paper literature since 1900. He read the text of a communication from Doctor West in which he said that arrangements had been made for the publication of the bibliography at a cost of $10 a volume, with a presubscription price of probably 20 per cent off. The book is likely to be completed by May 1.

The Committee on Abstracts suggested that the secretary canvass the members of the Technical Section by mail to ascertain the number of advance orders that could be placed. The report was adopted as read.

For Closer Contact of Universities and Industry

A request from the Technical Service Council of Toronto for the appointment of a representative of the Technical Section to act on the executive committee of the council was read by Secretary Beck. The Technical Service Council, it was explained, had been organized to bring the graduates of universities and technical institutions into more practical association with Canadian industry. Other objects of the council included the organization of a movement to retain in Canada young Canadians trained along technical and scientific lines. The movement was represented to be a patriotic one sponsored by prominent men and representative trade, financial and technical organizations.

At first it was proposed to leave consideration of the subject to the incoming chairman of the section, but after an explanation by W. G. MacNaughton, a motion was made by L. T. Crossley that the matter be referred to the incoming executive with a strong recommendation of favorable action on the appointment of a representative.

Sympathy for Cone Barlow

The illness of Cone Barlow, of the Donnacona Paper Company, was made the subject of a comment by Secretary Beck and it was suggested that a message of sympathy be sent to him at Saranac Lake, which was done, after Chairman Costigane had signified his approval, and many of the members had joined in urging that a resolution of sympathy with an expression of good wishes for his speedy recovery be sent by telegraph.

This closed the business of the forenoon sitting and adjournment was had to 2:30 P. M.

WEDNESDAY AFTERNOON SITTING

At the afternoon sitting, which was opened by Chairman Costigane at 2:45 o'clock, Dr. F. M. R. Bulmer, of the Ontario Department of Health presented a paper on "Atmospheric Conditions in Paper Machine Rooms," in the course of which he advocated a healthy environment for workers and made a plea for the use of hoods over dryers in the machine room of new design and construction but without definite specifications, except that the hood should be made of non-conducting material to prevent radiation of heat into the room. Ventilation in the machine room could not be improved, he said, until the air used for vapor removal was under better control. He advocated bringing the air used for drying to the drying rolls in ducts so as to provide absorption of water vapor and its removal to the outside without intermingling with the atmosphere of the room.

Hygiene of the Paper Machine Room

A number of slides were shown to indicate the temperatures of the dry end and wet end of the machine room respectively and the temperatures at floor level and nose level. It was shown that the temperature rose from the region of the dry end and went lower in the direction of the wet end. As regards the difference between nose and foot level temperatures, uncomfortable conditions were caused by them which predisposed the subject to respiratory disease. It was important also to have good air movement, as apart from its cooling effect, air movement had a stimulating action on the nerve endings in the skin. As may be inferred, Doctor Bulmer's work had more to do with hygenic conditions in the paper machine room than with actual problems of paper drying. This paper was followed by another on "Vapor Control in Paper Drying", by H. W. Cowan, a consulting engineer of Toronto, who treated the subject from the practical engineering standpoint, though not that of a paper engineer.

Received with Incredulity

Some of Mr. Cowan's explanations of the movement and condensation of vapor from the dry end to the wet end of the machine were received with incredulity by the paper mill engineers who heard him. Following his explanation to its logical conclusion, there would be a deluge at the wet end if none of the vapor found its exit through the stack of the machine, and one member said he could not recall ever having been actually caught in a rainstorm at the wet end. Professor Keay said that about 2½ lbs. of water were evaporated for every pound of paper made, and if that did not go out through the stack the machine tenders would be drowned.

Objects to Publication

W. G. MacNaughton expressed the opinion that the publication of the papers by Doctor Bulmer and Mr. Cowan would be apt to create a wrong impression concerning paper machine room conditions in Canadian and United States mills. He said he had visited many mills during the past two years but could not call to mind one in which conditions as described in either of the papers could be found. There might be mills where such conditions existed but they were the rare exceptions.

Not Representative Conditions

The entire time of the afternoon sitting was taken up with a discussion of the papers presented by Doctor Bulmer and Mr. Cowan, and the character of the discussion, must have convinced the authors that the conditions described by them were quite exceptional. As Mr. MacNaughton said in closing the discussion, the question of ventilating and drying paper was one that had been intensively studied in recent years by mill engineers. There were available known processes and equipment sufficient to correct the conditions described without the invention of any new apparatus. He seconded the motion for a vote of thanks to the authors of the papers, both on account of the labor that had been involved in their preparation and for having afforded the members an opportunity of discussing some backward conditions. The afternoon sitting was then adjourned.

THURSDAY MORNING SITTING

The proceedings of the third sitting held on Thursday morning, January 26, were opened by Chairman Costigane, who announced the first item on the program to be a paper by Prof. Harold Hibbert descriptive of the work of the Department of Cellulose Chemistry at McGill University. The paper was available in printed form and Professor Hibbert said he would not read it verbatim but gave an outline review of it.

What Is a Pentosan?

He began by telling of a luncheon some eighteen months ago when the plan of co-operative research was put into operation. He was invited to speak on the subject of foundamental research. On that occasion he used one or two technical terms rather indiscreetly, he thought. He made mention of pentosans and hexosans, and in relation to a pentosan said that with a better knowledge of it. it might be possible to determine the various constituents of wood. Later he was approached by a prominent member of the association who said: "Doctor Hibbert, have you ever seen a pentosan?" and when he replied in the affirmative, the member said, "Well, tell me, what did the son of a — look like?"

Problems Up for Solution

Under the circumstance, Doctor Hibbert was obliged to begin with the fundamentals and devise a program of work that would not only be of use to the industry but that would enable the Research Department to formulate a system which would be continuous in operation. There were two main problems to be solved with regard to sulphite pulp, one being the product of the fibre in its adaptability to the manufacture of newsprint paper and the other where it was to be used to make rayon pulp, where all other products except cellulose had to be removed. Analytical methods had to be evolved and an intensive series of investigations were made at the Forest Products Laboratories to determine the nature of pentosans in cellulose as well as other products.

Vapor Pressure of Sulphurous Acid

He outlined the main operations involved in the production of sulphite pulp, which he remarked, was purely a chemical problem. In the study of chemical problems it was important to know the nature of the product and temperature and pressure conditions; in other words define factors that determine any increase or decrease in yield, or increase or decrease in quality of product. An important essential was to determine the pressure of the sulphurous acid solution and the cooking conditions. These data are not available in the literature. The Brown Company made determinations years ago but kept the information to themselves. Thanks to the work of W. B. Campbell and Dr. Otto Maass, considerably more is now known concerning the vapor pressure of sulphurous acid solutions and the Research Department was in a much better position to operate scientifically in regard to this one factor.

Lignin the Unknown and a Story

Lignin, one of the principal constituents of wood, occurring to the extent of 28 per cent, has never been prepared in the pure state and it is an unknown product so far as the nature of the constitution is concerned. The situation regarding lignin reminded him of a story told by the head of the Department of Classics who had been complaining bitterly of students coming to the university with no knowledge of Greek or Latin, because they had never studied these languages. The professor of classical languages was reported by Doctor Hibbert to have said: "I asked one of my students the question, 'What and where is the Rialto?' And one boy came back and said, 'The Rialto is a well known place in the business center of Venice,' but unfortunately he spelled Venice, 'V - E - N - U - S'" (Laughter).

Doctor Hibbert said the incident was an illustration of the difficulty of working or proceeding without some knowledge of previous conditions and what it might be desirable to accomplish. He hastened to add that he was now speaking of wood.

Method of Removing Lignin

With regard to lignin he said that a simple method had been evolved whereby lignin could be removed from the cellulose in a practically unchanged condition. A study was now being made of lignin to determine how it could be removed in the easiest and most expeditious way, the use that can be made of it, and how it can be left there when it is not desirable to remove it.

Newsprint Without Sulphite

Doctor Hibbert said he had been accused of being too optimistic in assuming that in the next five years or so it might not be necessary to use sulphite pulp in the manufacture of newsprint paper. But there was evidence of a technical character that the industry was on the way to this accomplishment. He would not say what might be used in its place, and he had to decline to answer questions at this time.

Relation Between Acid and Base

He followed this with an exceedingly technical discussion of the constituents of wood and the products of cooking wood. He spoke of the relation that must be maintained between free acid and free base in sulphite cooking. It was well known that a definite relation must be maintained between those factors but it was not known why and each particular mill operation is limited because of lack of this knowledge. One result of the investigations now being carried on at the Department of Cellulose Chemistry should make it possible to determine what particular concentration is needed to avoid a burned cook and what to obtain full strength of the pulp.

Mercerization and Hydration

Some of the other unsolved problems mentioned by Doctor Hibbert included the nature of mercerization and what hydration was. He brought an interesting extemporaneous discourse to a close with acknowledgements to E. P. Cameron, director of the Pulp and Paper Division of the Forest Product Laboratories, and the members of the Administrative Committee for wholehearted support. He hoped that the university would continue to be made responsible for the

fundamental scientific work, leaving to the government and the Technical Section of the Canadian Pulp and Paper Association the task of applying the new information obtained to the solution of industrial problems. The scientific solution of such fascinating problems as the nature of cellulose, the constitution of lignin, hydration and degradation of cellulose, etc., was a pursuit in which the university men as scientists were content to spend their days and nights.

Tribute to Professor Hibbert

Dr. Emil Heuser, of the Riordon Pulp Corporation, Hawkesbury, Ont., paid a tribute to the work that had been done under Doctor Hibbert's direction in the Department of Cellulose Chemistry at McGill University. He was sure that Doctor Hibbert and his associates were on the right track and suggested that technical men be not afraid of too much science. Fundamental science was the most important basis for any application of science to technical problems and should therefore be of special interest to technical men and manufacturers, who, while not concerned so much with science as with practical affairs and the application of science to industry would in time get the benefit of research work.

There followed a lengthy interchange of debate between Doctor Hibbert and Doctor Heuser concerning the nature of lignin and methods for its isolation. To many in the audience it sounded like a discussion of Einstein's relativity theory and just as intelligible.

Bearing of Research on Industry

Discussing Doctor Hibbert's address, W. G. MacNaughton said it was inspiring to learn what an important bearing fundamental research had upon industrial processes. He thought that at this time the mills should begin to consider what they should do when the results of research reach a stage where they can be applied in the mills. When the time approached that Doctor Hibbert could show in the laboratory that a certain procedure would be beneficial, it might be necessary to check the amount of wood digested and quantity of pulp produced. Many mills could increase their yield at the present time with a known method of procedure and measurement of the wood.

Significance of Research

W. G. Mitchell, director of Price Bros. & Co., said that Doctor Hibbert's paper represented a part of the original plans of the Canadian Pulp & Paper Research Institute, plans in the development of research that are now within a measurable distance of being realized. The Research Institute Building which had been in course of construction for several months past would be completed shortly and mark a significant forward step.

Mr. Mitchell regarded the papers and discussions on cellulose chemistry to which they had been listening a happy augury, as they were a part of the crop from the seeds sown in the past. He wondered if the members of the Technical Section were aware of the amount of effort and sacrifice that had been put into the work of establishing the Canadian Pulp & Paper Research Institute by such men as Col. Jones, Doctor Bates, Mr. Hovey, Mr. Bryant, Mr. Cameron and Professor Hibbert.

Penetration of Liquids into Wood

Dr. G. W. Scarth, professor of botany at McGill University, was then called upon to present his paper on "The Penetration of Liquids Into Wood." Professor Scarth began by remarking that the chemists had had good innings with the previous papers and discussions, and it was his function to tell that wood was something more than a chemical substance. He did not consider it necessary after Professor Hibbert's address to point out the importance of a study of the penetration of liquid into wood. The study was not concerned with any speeding up of the cooking process but rather to determine rates of penetration and what acid and what base to use where there is a slow diffusion through cell membranes, each going in at a different rate. It was only by bringing about an actual flow of liquid that both could be carried along en masse. In this way only could one be sure of having a uniform penetration at an equal rate of acid and of base. He then proceeded to read the text of his paper which was illustrated by lantern slides showing the intimate microscopic appearance of the cellular structure of wood and the influence of surface tension, resins, etc., on the passage of liquids through cell walls and membranes.

Influence of Pressure on Penetration

During the discussion that followed, Professor Scarth was interested to get from some of the members practical confirmation of what was to him a scientific hypothesis concerning the influence of high pressure on the penetration of wood by liquids. S. W. Blanchard said he had tried various ways of cooking, such as coming up rapidly to a high pressure, perhaps in fifteen minutes or half an hour, with the idea of getting a rapid penetration of the wood with the cooking liquor, but it did not work satisfactorily. He was convinced from a study of the photomicrographs shown by Professor Scarth that it was not best to come up suddenly to pressure and that a superior penetration of the chips would be obtained by coming up more slowly. He knew of a few mills that were using a method of coming up to a fairly high pressure in two and a half to three hours and gradually climbing; better results were obtained in that way than in coming up quickly and holding a certain pressure on the top.

Doctor Heuser congratulated Professor Scarth on the clear and simple manner in which he had explained a complicated process.

Oxford Paper Company's Experiments

D. E. Cable confirmed some of the observations made by Professor Scarth with reference to the penetration of wood by liquids and cited some experiments made on the pulping of resinous woods at the laboratory of the Oxford Paper Company. In the case of sap wood of southern pine, there was no difficulty in obtaining a high-grade sulphite pulp with sodium bisulphite liquor, whereas with hardwood cooked with bisulphite cooking acids, there appeared to be little or no reduction. But if sodium and ammonium bisulphite were substituted for calcium bisulphite good results were obtained, which would indicate that sodium had a superior penetrative action. He said it was interesting to note that thre was a definite mechanical difference in the fiber of hard and sap woods.

This closed the discussion and Chairman Costigane moved a vote of thanks to Professor Scarth for his illuminating paper, which was carried unanimously.

Vapor Pressure of Sulphite Acid

W. B. Campbell, of the Forest Products Laboratories, was then introduced to present a paper on "Pressures of Solutions of Sulphurous Acid at High Temperatures." This gave an outline of work that had been started a year ago to investigate the properties of sulphur dioxide solutions with special regard to the vapor pressure of cooking liquor under certain conditions. Accurate values for the vapor pressures had been obtained over a fair range of temperatures and pressures, as well as of the density of solutions of sulphur dioxide without the presence of a base, and determinations of electrical conductivity were now under way. He said it was still too early to discuss the possible effect of the work on the theory of sulphite cooking, but all results so far support the idea that at high temperatures a solution of sulphur dioxide is not, except to an extremely small extent, a solution of sulphurous acid, but that the sulphur dioxide exists as such in the solution. The bearings of this on the cooking process will be investigated when more experimental evidence is available.

Congratulations from D. C. Everest

Following the reception of this paper, a telegram was read from D. Clarke Everest, president of the American Paper and Pulp Association, congratulating the Technical and Woodlands Section on the excellent work done by them during the past year and expressing the hope that there might be the closest co-operation between the Canadian and American associations in the matter of both technical and forest research which was the very foundation of the pulp and paper industry.

New Officers Elected

The report of the Committee on Nominations, C. Nelson Gain, chairman, was then called for. In accordance with action taken at last year's meeting recommending that the office of vice chairman be abolished, this was so moved by the committee. H. J. Buncke was nominated to succeed Mr. Costigane as chairman of the section and R. A. McInnis, C. B. Thorne, John Stadler and A. P. Costigane were nominated as councilors to serve during the ensuing year.

On motion of Mr. Papineau-Couture, nominations were closed and the secretary instructed to cast one ballot for the officers nominated.

After Raymond S. Hatch, former president of the T. A. P. P. I. had been introduced and greeted the members the morning sitting was adjourned.

THURSDAY AFTERNOON SITTING

At the afternoon sitting H. J. Buncke was installed as chairman, and on motion of J. O. Mason a vote of thanks was tendered to the retiring chairman. This took the form of three rousing cheers. Chairman Buncke then introduced Louis Armstrong, treasurer of the Laurentide Company, who was down on the program for a talk on co-operation between cost accountants and technical men.

Mr. Armstrong Elucidates Cost Accounting

Mr. Armstrong gave a very entertaining account of the beginnings of cost accounting and led up to the subject of proper relations between the cost department and the technical department. He said he could approach the subject with an open mind because he knew nothing about accounting and was not a technical man. He then launched out into a really informing account of the development of cost accounting in the paper industry, speaking in part as follows:

Primitive Accounting

"We often hear it said that the paper business is a sort of a leftover from the old lumber business, which is undoubtedly true. In the development of some of the lumbering propositions and the paper propositions, and the passing along of some of the men from the lumber business into the paper business, they have taken with them a great many of their ideas, and I think that perhaps one of the ideas which they took with them was their idea of accountants and accounting.

The Early Cost Men

"We all know that the original lumber business was rather a primitive affair. I have seen a small mill owner making his original entries on a piece of planed white pine board. He took that board home with him on Saturday night, and on Sunday afternoon, he engaged in the occupation of what he called 'writing up his books.' I suppose the development of the thing was, that as the business grew, and as he found that his Sunday afternoons were being more encroached for him to get some help, and feeling that the writing up of the books was not much of a job, but something which almost anyone could do, he began to look around to find where he could get a man to do it without asking very much pay for it. The natural tendency was to look for someone who was more or less in the dependent class; he might get a cripple, for instance, or the village drunkard. Or perhaps nothing but a poor relative (Laughter).

"Fancy Bookkeeping"

"That idea of an accountant being a good deal of a dependent was passed on to the paper business. The accountant was a man to whom you did not have to pay much money. He was not a producer; at least he was not producing anything which could be sold. Accordingly, when the owners of the property felt it was necessary to introduce any economies, they usually considered it would be a good plan to cut out a lot of fancy bookkeeping, and so they fired the assistants to the accountants, and let the accountants sit up all night once in a while to see what it seemed like to do a little real work.

"As time went on, we began to hear about efficiency experts, and cost engineers. But it is only within the last few years that people have begun to allow the accountant to come into his own, and to believe that perhaps after all, if you are going to do any accounting, an accountant might be a good man to do it." (Laughter).

Underlying all of Mr. Armstrong's humorous allusions was a vein of sound commonsense. As a mode of co-operating, he suggested that the accountant and the technical man should get together and endeavor to form a picture of mill operations and if this was not possible then the trouble might be that the mill did not have the right kind of an accountant or right kind of a technical man. Mr. Armstrong's conception of estimating profit and loss made everybody laugh. Thus, he said:

Vague Quantities and Vague Losses

"You have a mill and you wish to operate it; in order to operate it, it is necessary for you to have raw material, so you go into the woods and buy it; you do not know how much you buy, and you do not know how much you pay for it, and you have perhaps a sort of feeling that you are not going to get all you pay for. Eventually some of it comes to the mill, but you do not know how much. It is necessary then to prepare it for use, and in the preparation you lose a certain amount but you do not know how much. Then you take some of your prepared material, but you do not know how much, and convert it into pulp; but you do not know how much. Then you take some of the pulp, but you do not know how much, and you run it through your paper system where you lose a certain amount; but you do not know how much. Finally you get some paper. You take some paper and some moisture and wrap it up together, weigh the paper, the moisture and the wrapper—and sell it for a ton of paper. Then the manager comes around and says to the accountant, 'Tell me how much that ton of paper has cost, so that I can tell my board of directors how much profit has been made on it.'" (Laughter).

Faulty Calculations

Mr. Armstrong gave some instances of faulty calculations on supposed wood losses which added to the cost per ton of paper production, and in the same way mentioned the item of lubricants which might mean a variation in cost based on tonnage. There was no certainty about the actual cordage of wood required to make a ton of paper. On man will figure it out at 1 1/3 cords, while another will say that 1 1/2 is nearer right, which represents a considerable variation. Assuming that it takes 1 1/4 cords of wood to make a ton of paper, the man who takes 1 1/3 cords loses eight cents on his working capital; and the man who takes 1 1/2 cords as his basis loses twenty-four cents per ton of product in interest on his working capital. He pointed out that in a carefully piled cord of wood there might be a variation of as much as 30 per cent. The mill that buys a cord of wood for $15 may not make as much profit as the mill that in another locality pays $16 a cord. The $15 wood may only weigh 2,200 lbs. and the $16 cord weighs 2,600 lbs. This is a 20 per cent variation, but it means a loss of $1.32 per cord of wood.

Depletion and Depreciation

He also spoke of depletion and depreciation. In the olden days these subjects were regarded as matters of management policy. It was felt that charging for depletion was unnecessary, and it was considered inadvisable to write off depreciation, so that in addition to giving the wood away by failing to account for depletion, in the long run the mill itself would be thrown in. There must not only be a proper rate of depreciation but a proper method of charging it off.

The Triangle in Management

Mr. Armstrong deplored the fact that there was not more opportunity for the accounting and the technical departments to get together for the consideration of common problems. The situation in the average organization was described by him as follows:

"You have an executive sitting, we will say, at point A, which represents the apex of an incomplete triangle. The manager goes down the line to point B, sees the accountant, gets part of the picture and takes it back with him to A;

then he goes down the line in another direction to point C, sees the technical man, gets part of the picture and takes that back to point A.

"Being often, like myself, neither an accountant nor a technical man, the manager has difficulty sometimes in making the pieces fit. What I feel the industry needs, is that we draw a line between point B and point C which will complete this triangle and give a basis upon which the work of the industry should be done, so that the completed picture may be taken back at the end of a long straight line to the manager at point A." (Applause).

Discussion of Papers

Mr. Armstrong's remarks were discussed by a number of other members and with full appreciation of their humorous, ironical and sound commercial implications. Mr. Creighton, of the St. Lawrence Paper Mills, was of opinion that it would be helpful to the technical man if he would think more in terms of dollars than in the usual figures of quantities.

Mr. Milledge, of the Howard Smith Paper Company, referred to Mr. Armstrong's comment on the triangle and said that as a cost accountant he would represent the lower parts around B and C. In a well managed concern the line from B to C is well joined. The cost accountant is interested in the presentation of figures and the technical man in the application of these figures; unless they are properly applied the results will be disappointing.

Budget System at Abitibi

Mr. Colbourne, of the Abitibi Power and Paper Company, gave a most interesting detailed account of a budget system employed at Iroquois Falls. A daily budget is prepared for one month's operation in advance, this being converted into dollars and cents on the daily basis. Operating conditions in every department of the mill are pre-determined. The general superintendent knowing the peak of production in terms of average tons per day for the month would set the percentage of sulphite and the two figures would then be used as a quantitative basis for all the other figures in the budget. In the same way the ground mill superintendent knowing the expected peak production and the sulphite percentage would figure the amount of groundwood to be produced and so determine grinding operations, number of grinders and men and supplies required, together with an estimate of repair work. The same thing would apply in a sulphite mill, the sulphite superintendent determining the amount of sulphite pulp which he had to produce. This is done with all of the production departments, the wood room, the paper mill, etc. The estimates would be carried to other non-production departments, as the service divisions, laboratory and office. When the budget figures are determined they are taken by the cost accountant and set up departmentally in terms of dollars and cents, the department budget including no item of expense over which the department superintendent has no control. When the figures are all set up they are distributed so that each superintendent knows exactly what his operation is expected to be.

The next step is the compilation of a system of daily costs for comparison with the predetermination. By this system a definite relationship has been established between the accounting department and the operating ends of the mill.

A Word for the Practical Man

B. J. Waters, of the Spanish River Pulp & Paper Mills, asked to say a word for the practical men in charge of operations in the mill—the men who had the responsibility of producing pulp and paper. He thought if more of the practical men could be induced to attend the meetings and discuss papers it would be of great help to chemists and engineers, because they would then get the operating point of view.

P. B. Wilson paid tribute to the value of Mr. Armstrong's observations, saying that Mr. Armstrong had been at the head of the News Print Service Bureau cost department for many years and all in the Bureau had to a certain extent sat at his feet and learned much from him.

G. A. Ware, assistant secretary of the News Print Service Bureau, also testified to the value of the message that had been brought to the section by Mr. Armstrong, and he emphasized the importance of adopting definite cost standards to fit in with the technical man's quantity and quality standards.

R. A. McInnis Closes the Discussion

The discussion was brought to a close by R. A. McInnis, of the Anglo-Canadian Pulp & Paper Company. Mr. McInnis was formerly connected with the Abitibi Power & Paper Company and referred to the system of departmental costing and estimating employed there. He said the trouble with that system was that it involved a "teeter-board" system of management. When there was concentration on cost, the other end went up and when that end was attended to the cost end went up, so that what was needed was more balance. There was no sense in talking about the life of felts and wires, and this, that and the other thing, unless they were considered in the terms of cost balances. What the management of a mill wants to know from an accountant is the true balance under operation. The only way to operate economically was to set up a standard of operations and apply costs against that standard.

Operation of the Minton Vacuum Dryer

The next item on the program was a paper by Dr. O. J. Campbell and H. G. Wales on "A Study of Fourdrinier Wire Life," but before calling for this, Chairman Buncke asked W. J. Mitchell, of Price Bros. & Co., if he would not tell the meeting something about the operation of the Minton vacuum dryer at the Kenogami mill.

Mr. Mitchell said that continuous tests during the past six weeks had established beyond any question the thermo efficiency of the vacuum dryer, and Mr. Wardle, of the Laurentide Company, had made a conservative statement in reporting that the economy in drying paper by the Minton vacuum system was 25 per cent over that obtained with the best modern machinery equipped with economizers.

Production With the Minton Dryers

Mr. Mitchell said that during the past week the average production of the machine equipped with the vacuum dryer and running at a speed of 690 to 698 ft. a minute was 55.3 tons and there was a period of three consecutive days when the production of this machine averaged 55.5 or 57.6 tons. He thought that that was a sufficient answer to the question sometimes put as to the capacity of the vacuum dryer as compared with the open stack dryer.

Mr. Mitchell praised the courage of Mr. Minton in carrying on his work to the stage it had reached. He possessed not only courage and sincerity of conviction but tenacity of purpose. Mr. Mitchell added that he desired to pay a sincere tribute to the man who had made possible the application of the vacuum principle to the drying of paper, as he was sure it was destined to have farreaching consequences. "Of course," Mr. Mitchell said "Men who blaze trails of progress are always disturbing in a sense: they threaten to render obsolete a lot of our equipment, and make the accountants set up larger reserves than ever before, but that is only an incident in the general march of progress."

In the course of his talk Mr. Mitchell remarked that it took 1.18 to 1.20 lb. of steam at 212° to evaporate a pound of water from a sheet of newsprint.

What Causes Wear of Wires?

Dr. J. Campbell, of the Abitibi Power & Paper Company was then asked to present a paper on "A Study of Fourdrinier Wire Life" which had been prepared by him with the assistance of H. G. Wales. The text of this paper is given in another part of this issue of THE PAPER INDUSTRY. It was discussed by a number of the members and visitors.

Mr. Johnson, of the Johnson Wire Works, Montreal, was disposed to believe that the presence of sand or gravel in the mill water was responsible for most of the wear and tear on wires, and not acid corrosion from alum or high temperature of stock. The question of electrolytic dissociation of the metals composing the wire was brought up, but Doctor Campbell thought there would be very little electrolytic action of this kind.

After passing a vote of thanks to Doctor Campbell and Mr. Wales, Chairman Buncke declared the meeting adjourned.

ATTENDANCE AT TECHNICAL MEETING

A total of 147 members and guests registered at the secretary's desk for the meeting of the Technical Section of the Canadian Pulp and Paper Association during the two days of meeting, but the attendance at the different sittings was swelled by the presence of visitors. The names of those who registered are given below, as follows:

D. I. Adams, Wayagamack Pulp & Paper Co., Three Rivers, Que.; R. B. Adams, Stowe & Woodward Co., Newton Upper Falls, Mass.; F. H. Andrews, St. Maurice Valley Corp., Shawinigan Falls, Que.; C. G. Arbo, Montreal; F. F. Arnoldi, Canada Paperboard Co., Montreal; W. S. Atkinson, H. Atkinson, Pont Etchemin, Que.

J. W. Bain, University of Toronto, Toronto; A. B. Baker, Texas Gulf Sulphur Co., New York; R. S. Baker, Riordon Pulp Corp., Temiskaming, Que.; W. C. Baldwin, E. B. Eddy Co., Hull, Que.; Harry E. Bates, Laurentide Co., Grand Mere, Que.; J. S. Bates, Price Bros. & Co., Quebec; Chr. Bay, Canadian International Paper Co., Hawkesbury, Ont.; George D. Bearce, International Paper Co., New York; Howard E. Beedy, Nashwaak Pulp & Paper Co., New York; R. Belanger, Quebec Pulp & Paper Co., Chicoutimi, Que.; H. Bidnell, Price Bros. & Co., Quebec; S. W. Blanchard, E. B. Eddy C., Ottawa; S. B. Bond, Bathurst Company, Bathurst, N. B.; G. A. Brace, Ferranti Electric, Toronto; C. H. Bridge, Anglo-Canadian Pulp & Paper Co., Quebec; W. E. Brown, American Wringer Co., Farnham, Que.; Dr. F. M. R. Bulmer, Div. Industrial Hygiene, Ontario Dept. of Health, Toronto; H. J. Buncke, Abitibi Pulp & Paper Co., Iroquois Falls, Ont.

Donald E. Cable, Oxford Paper Co., Brooklyn, N. Y.; D. G. Calvert, Fort William Paper Co., Fort William, Ont.; E. P. Cameron, Forest Products Laboratories, Montreal; Roy Campbell, Canadian International Paper Co., Montreal; W. Boyd Campbell, Forest Products Laboratories, Montreal; C. Newton Candee, Lincoln Pulp & Paper Co., Merritton, Ont.; R. C. Carroll, Garden City Paper Mills, St. Catharines, Ont.; L. E. Charles, Canadian Vegetable Parchment Co., Merritton, Ont.; R. Collins, Wayagamack Pulp & Paper Co., Three Rivers, P. Q.; A. B. Copping, International Paper Co., of Newfoundland, Corner Brook, Newfoundland; John Cornell, Paper Mill, New York; A. P. Costigane, Toronto; A. Papineau-Couture, Montreal; H. W. Cowan, Toronto; D. Crabtree, Montreal West; T. L. Crossley, Industrial Laboratories, Toronto; J. C. Cunningham, Industrial Div. Ontario Department of Health, Toronto; F. T. Curtis, Merrimac Chemical Co., Boston, Mass.

S. L. Decarteret, Hammermill Paper Co., Quebec, Que.; T. L. Dunbar, Canadian Stebbins Engineering and Manufacturing Co., Montreal.

D. J. Emery, Price Bros. & Co., Riverbend, Que.

John M. Finlay, Ritchie & Ramsay, Toronto; G. M. Fowler, Laurentide Co., Grand' Mère, Que.

H. Grinstad, Brompton Pulp & Paper Co., East Angus, Que.; B. Grav, Canadian International Paper Co., Temiskaming, Que.; G. P. Graham, Howard Smith Paper Mills, Cornwall, Ont.; C. Nelson Gain, Interlake Tissue Mills Co., Merritton, Ont.

R. J. Hamilton, Wayagamack Pulp & Paper Co., Three Rivers, Que.; J. A. Hanrahan, Gulf Pulp & Paper Co., Quebec; C. S. V. Hawkings, Price Bros. & Co., Riverbend, Que.; G. Henderson, Wayagamack Pulp & Paper Co., Three Rivers, Que; Emil Heuser, Canadian International Paper Co., Hawkesbury, Ont.; H. S. Hill, Research Section, Canadian Pulp and Paper Ass'n, McGill University, Montreal; E. S. Holmsted, American Wringer Co., Farnham, Que.; C. W. Hurtubis, Hammermill Paper Co., Erie Pa.; W. J. Hussey, Spanish River Pulp & Paper Co., Espanola, Ont.; R. P. Hill, Pulp Bleaching Corp., New York.

C. C. Irvine, Manitoba Paper Co., Pine Falls, Manitoba.

A. G. Jacques, Brompton Pulp & Paper Co., East Angus, Que.; J. D. Jenssen, New York; Bjarne Johnsen, Hammermill Paper Co., Erie, Pa.; H. W. Johnston, McGill University, Montreal.

H. E. Karberg, Lincoln Pulp & Paper Co., Merritton, Ont.; H. O. Keay, Laurentide Co., Grand' Mère, Que.; T. J. Keenan, THE PAPER INDUSTRY, New York; G. Keltie, American Wringer Co., Woonsocket, R. I.; H. F. E. Kent, W. J. Gage & Co., Toronto; W. L. Ketchen, B. C. Pulp & Paper Co., Port Alice, B. C.; W. S. Kidd, E. B. Eddy Company, Hull, Que.; N. T. Kraft, Canadian International Paper Co., Temiskaming, Que.

G. H. Lagontaine, Bennett Ltd., Montreal; H. H. Latter, Johnson Wire Works, Montreal; R. W. Leeper, Canadian General Electric Co., Toronto; E. Lindberg, Dominion Paper Co., Kingsey, Que.; E. Linibom, Bonaventure Pulp & Paper Co., Chandler, Que.; Herbert Lippitt, International Paper Co., New York.

A. A. MacDiarmid, Price Bros. & Co., Quebec; J. G. MacLaurin, Riordon Pulp Corp., Temiskaming, Que.; A. I. MacNaughton, Canada Paper Co., Windsor Mills; W. C. MacNaughton, News Print Service Bureau, New York; G. F. MacRae, Montreal; F. S. McConnel, Forest Products Laboratories, Montreal; Geo. M. McKee, St. Maurice Valley Corp., Montreal; A. S. McNichols, Quebec Pulp & Paper Corp., Chicoutimi; C. N. McNulty, Texas Gulf Sulphur Co., New York; C. F. Medbury, Westinghouse Company, Montreal; G. Meerbergen, International Power & Paper Co. of Newfoundland, Corner Brook, Newfoundland; F. L. Mitchell, Abitibi Power & Paper Co., Iroquois Falls, Ont.; W. G. Mitchell, Price Bros. & Co., Quebec; C. R. Mereweather, Canadian International Paper Co., Ottawa; A. J. F. Montabone, Donnacona Paper Co., Donnacona, Que.; H. A. Morey, Spanish River Pulp & Paper Mills, Sault Ste. Marie, Ont.; C. A. Morris, Canadian Paperboard Co., Montreal; W. D. Mosher, St. Maurice Valley Corp., Belgo Division, Shawinigan Falls, Que.; C. A. Moyle, Canadian International Paper Co., Hawkesbury, Ont.; Wm. C. Munro, Canadian Iron Foundries, Montreal.

A. G. Natwick, Lincoln Pulp & Paper Co., Merritton, Ont.

P. Panzl, St. Maurice Valley Corp., Shawinigan Falls, Que.; J. L. Parson, Hammermill Paper Co., Erie, Pa.; J. E. Patterson, Abitibi Power & Paper Co., Iroquois Falls; G. W. Pauline, Ritchie & Ramsay, Toronto; J. M. Payne, Forest Products Laboratories, Montreal; L. M. Pidgeon, Cellulose Chem. Dept., McGill University, Montreal; G. S. Pincott, Anglo-Canadian Pulp & Paper Co., Quebec; O. M. Porter, American Paper and Pulp Ass'n, New York; E. M. Pyke, Wayagamack Pulp & Paper Co., Three Rivers, Que.

A. E. Quaal, Donnacona Paper Co., Donnacona, Que.

C. deW. Reid, Western Quebec Paper Mills, St. Andrews, E. Que.; A. F. Richter, Stebbins Engineering & Manufacturing Co., Watertown, N. Y.; F. I. Ritchie, Wayagamack Pulp & Paper Co., Three Rivers, Que.; D. F. Robertson, Canadian Paperboard Co., Montreal; J. H. Ross, Forest Products Laboratories, Montreal; H. J. Rowley, McGill University, Montreal.

J. Stadler, Lake St. John Power & Paper Company, Dolbeau, Que.; J. N. Stephenson, Pulp & Paper Magazine, Gardenvale, Que.; A. L. Stewart, Bailey Meter Company, Montreal; M. L. Smith, Newsprint Service Bureau, New York; N. St. Murin, Zilins Wood Pulp Co., Czechoslovakia.

C. S. Taylor, Ritchie & Ramsay, Toronto; J. Ellis Taylor, Howard Smith Paper Mills, Cornwall, Ont.; L. D. Tatley, Laurentide Co., Grand' Mère, Que.; J. Tomkins, Canadian International Paper Co., Hawkesbury; John Traquair, Mead Pulp & Paper Co., Chillicothe, Ohio; E. F. Tucker, Canadian Stebbins Engineering & Manufacturing Co., Montreal.

H. W. Vrooman, Bennett Ltd., Chambly Canton, Que.

C. E. Walsh, Canada Paper Co., Windsor Mills, Que.; J. M. Walton, Riordon Pulp Corp., Temiskaming, Que.; S. Wang, Canadian International Paper Co., Hawkesbury, Ont.; E. B. Wardle, Laurentide Co., Grand' Mère, Que.; G. A. Ware, News Print Service Bureau, New York; B. J. Waters, Spanish River Pulp & Paper Mills, Sault Ste. Marie, Ont.; H. W. Weller, Babcock, Wilcox & Goldie, Galt, Ont.; H. R. Wemple, Texas Gulf Sulphur Co., New York; C. E. Whitehead, Wayagamack Pulp & Paper Co., Three Rivers, Que.; C. E. Whitten, Canadian Paperboard Co., Montreal; Kenneth A. Wiede, Montreal; E. P. Wilson, Brompton Pulp & Paper Co., East Angus, Que.; A. Wright, Filtration Engineers Inc., Newark, N. J.

Meeting of the General Association

Progress of the Year Reviewed by Retiring President Wilson—Proud of Research Laboratory and Development of Industry in Canada—Col. C. H. L. Jones Is New President

THERE was a general attendance of the members of all sections of the Canadian Pulp and Paper Association at the fifteenth annual meeting which was opened by President L. R. Wilson at the Ritz-Carlton Hotel, Montreal, on Friday morning, January 27. The first business taken up was the reading of the minutes of the preceding annual meeting by Secretary Edward Beck, who also read the President's annual address.

Research Institute Nearly Ready

President Wilson began by referring to the progress of construction of the building of the Pulp and Paper Research Institute. It had been expected to hold this year's meeting in this building on the grounds of McGill University. Through nobody's fault the anticipation had not been realized. The structure was nearly completed and possession was now only a matter of a few weeks. It would not be long before the association was in possession of its permanent home in which every member could take pride.

Canada's Prosperity—He next touched on the condition of business in Canada during 1927. Business of every kind had enjoyed a fair measure of prosperity, the trade of Canada having exceeded $2,338,000,000, establishing a new record. He also reported a reduction in the public debt and notable expansion in hydroelectric development, mining and other industries, while building operations exceeded those of any year for upwards of a decade.

Expansion of Newsprint Mills—As to the pulp and paper industry, this was confronted by conditions peculiar to itself. The program of expansion of newsprint mills had continued without interruption, six new establishments, representing a daily output capacity of 1,620 tons having come into complete operation during the year. It was noted that this had resulted in excess production because the trade had not quite assimilated the new tonnage that had come on the market as a result of the previous year's expansion. Demoralization was averted by a more or less uniform reduction in actual output by the mills, and by the fact that there had been a falling off in the American output of newsprint paper.

President Wilson said the situation called for a keener supervision of all the factors entering into economic production as well as some reorganization of marketing methods and facilities.

Effects Will Be Felt This Year—As to the future, President Wilson remarked that as much of the increased mill capacity accredited to 1927 did not become operative until late in the year it would likely influence the situation to a greater extent in 1928 than in the year just closed. Fourteen new

machines with rated capacities of some 1,600 tons daily will come into operation this year and bring Canada's total possible output to more than 3,000,000 tons, which represents approximately 33 per cent of the world's assumed consumption of newsprint.

The Pulpwood Situation—He quoted the Hon. Charles Stewart, Minister of the Interior, on the pulpwood situation, as follows:

> "Until we are more certain that our pulpwood supplies will sustain the industry on a permanent basis there is no justification for continuation of the rather hectic expansion witnessed in the past few years. Rather, the time is more opportune for concentration of effort upon refinement of methods and the more complete manufacture by Canadian mills of pulpwood extracted from Canadian forests."

President Wilson said that while the contraction of wood supply was not yet felt seriously, it was something that would have to be reckoned with at no distant date.

Accomplishments of the Year—He reviewed the work of the sections and special committees during the year, detailed reports of which were available in printed form.

It was observed in one part of Mr. Wilson's address that the machinery of the association had been employed to defend the members' interests in three notable losses, all of which had terminated satisfactorily to the members. Two of these suits had been based on claims for an alleged infringement of patents and the third was for payment of claims arising out of government control of newsprint during the war. In closing he expressed thanks and appreciation to Secretary Beck and his staff "for the conscientious way in which they have performed their duties and the assistance they have rendered to the executive in his work."

Construction and Equipment of Institute—President Wilson made a separate statement concerning the progress of the Pulp and Paper Research Institute. The construction of the building would be completed well within the original estimates and leave a balance of approximately $26,000, which would be applied on the cost of equipment, the total cost of which was estimated at $105,000. He referred with gratification to the response of pulp and paper mill machinery manufacturers to requests for donations of equipment for the experimental mill and paper machine. The response had been very generous, engineering data being obtained on a number of devices that would bring the paper machine up to a high state of efficiency. He said that the members would be advised later of the firms that had participated and more public recognition would be made of their generosity when the work was completed.

Membership in the Corporation—He announced that under the by-laws of the Corporation of the Pulp and Paper Research Institute, the association was represented by three members in addition to its president and secretary. The members are elected by the association, one member retiring at the end of each year and his successor being elected at the annual meeting of the association. The retiring member at this time was C. Howard Smith.

A recommendation in the report that means be taken to find additional funds amounting to $42,000 for the equipment of laboratories was made the subject of a resolution by George A. Carruthers and this was acted upon favorably.

Mr. Wilson Retained on Research Corporation

Col. C. H. L. Jones called attention to the fact that the building of the Pulp and Paper Research Institute was still in course of construction and that Mr. Wilson was in perfect touch with all developments. He suggested therefore that Mr. Wilson be named as the successor of Mr. Smith on the corporation and a motion to this effect was adopted unanimously.

Colonel Jones then presented his report as chairman of the Research Section and moved that the Research Section be discontinued and the conduct of its work be left with the Technical Section and the Executive Council.

Big Meeting in Berlin This Year

After Secretary Beck had read a telegram from D. Clark Everest, president of the American Paper and Pulp Association, conveying cordial greetings and congratulating the Canadian association on the building of a research laboratory, Dr. Emil Heuser then announced that there was to be a meeting in Berlin, Germany, of paper technologists to which he hoped the association would send representatives.

Colonel Jones Elected President

Following the reading and adoption of reports the annual election took place. Col. Charles Hugh LeP. Jones was nominated to succeed L. R. Wilson and was elected unanimously. Colonel Jones is a native of Montreal where he got his early education and was later graduated from McGill University. As chairman of the Research Section he was largely instrumental in establishing the Pulp and Paper Research Institute at McGill University.

Tributes Paid to the Retiring President

Before taking up new business, Colonel Jones, J. A. Bothwell and P. B. Wilson delivered eulogies of retiring President Wilson. Mr. Bothwell began the song of praise by saying it was incumbent on the association to express thanks to Mr. Wilson for his valuable services. Colonel Jones paid tribute to Mr. Wilson and his fine record as president, expressing at the same time appreciation of his own election. He was frank enough to say that it had always been his ambition to be president of the association and he would try to live up to the high standard set by his predecessor. Somebody at this point told a Scotch story; it was likely Mr. Carruthers who has always one on tap, but it went about as follows:

A Scotchman going down the street saw a little boy crying. "What's the matter my wee man?" "I'm lost." "Is there any reward for you?" "No." "Then you are still lost."

First Paper Mill in Canada

After J. N. Stephenson had called attention to the fact that the first paper mill was erected in Canada 125 years ago, known as the Western Quebec Paper Mills, Mr. Carruthers moved that the National Monument Committee be asked to mark the spot of the original mill in Canada.

R. S. Kellogg was asked to make a statement concerning the progress of the textbook committee and he responded with an interesting financial report. He said the work had been compiled at a total expense of $56,000.

Praise for Secretary Beck

The final business of the meeting consisted of a resolution proposed by retiring President Wilson and seconded by Mr. Price, of Price Bros. & Co., conveying the special thanks of the association to Secretary Beck and his staff on the work of the year which was stated to be of high character and deserving of every encomium.

SOCIAL FEATURES

Among the attractive and enjoyable features of the annual meetings arranged by the Canadian Pulp and Paper Associations are the luncheons and dinners at which men of prominence in the public affairs of the Dominion, as well as outstanding representatives of the pulp and paper industry appear as speakers.

Technical and Woodlands Luncheon

At the luncheon on Thursday, January 26, which was a joint gathering of the Technical and Woodlands Sections, R. A. McInnis, general manager of the Anglo-Canadian Pulp and Paper Mills, Ltd., gave an inspiring talk on the trend of management and the problems confronting the industry in the tempo of progress. According to him, the chief end of the modern mill manager was to insure improvement in quality of product and economy of operation, and Mr. McInnis indicated in his speech the ways by which this desirable consummation might be attained. One point of importance made by him was that if present-day technical men were expected to think in terms of new processes and new equipment, new data must be available for them on which to base future progress. Mr. McInnis is a believer in keeping up with the times as regards the use of new and improved machinery and equipment which is admirably exemplified in the splendid new mill which has been constructed under

his guidance in the City of Quebec, where all the latest inventions in power and labor-saving machinery are housed.

General Luncheon

L. R. Wilson presided at the general luncheon of the association on Friday and he was flanked on either side by George Chahoon, Jr., of the Laurentide Company; Sir Charles Blair Gordon, president of the Bank of Montreal; F. J. Campbell, vice president and general manager, Canada Paper Company Ltd.; Col. C. H. L. Jones, general manager, Spanish River Pulp & Paper Mills, Ltd., Sault Ste. Marie, Ont., the newly elected president of the association; Frank W. Clarke, managing director, Canadian Anglo Paper Company, Ltd.; Col. John H. Price, president, Price Bros. & Co., Ltd., Quebec; Alexander Smith, president, Abitibi Power & Paper Company, Ltd., Iroquois Falls, Ont.; George Carruthers, president, Interlake Tissue Mills, Ltd., Merriton, Ont.; J. W. Dafoe, editor, "Manitoba Free Press", Winnipeg; Percy B. Wilson, managing director, Canadian Newsprint Company, Ltd.; Gerald M. Markham, vice president, Federated Press; George M. McKee, managing director, Port Alfred Pulp & Paper Company, Ltd., and the St. Maurice Valley Corporation; Joseph A. Bothwell, managing director, Brompton Pulp & Paper Company, East Angus, P. Q.; H. F. E. Kent, managing director, W. J. Gage & Co., Toronto.; Brig.-Gen. J. B. White, vice president, Canadian International Paper Company, Ltd.; W. A. Black, director, Bank of Montreal; Dr. R. F. Ruttan and Prof. Harold Hibbert, McGill University; J. P. Ripley, vice-president, National City Company, New York; L. B. Palmer, secretary, American Newspaper Publishers' Association, New York; John Stadler, managing director, Lake St. John Power & Paper Company, Dobleau, P. Q.; G. C. Piche, chief of forest service, Province of Quebec; Arthur L. Dawe, managing director, Canadian Overseas, Ltd., Montreal; C. B. Caesar, assistant general manager, E. B. Eddy & Co., Hull, P. Q.; Royal S. Kellogg, secretary, News Print Service Bureau, New York, and Edward Beck, secretary of the Canadian Pulp and Paper Association.

A Banker Cautions Against Overexpansion—At the annual luncheon of the general association on the second day of meeting, the principal speaker was Sir Charles Blair Gordon, president of the Bank of Montreal, who prefaced what he had to say concerning the pulp and paper industry, with some observations on assisted immigration to which as a Dominion policy he is opposed. He advocated that more attention be paid to reforestation in order to insure a continued supply of pulpwood, but cautioned his hearers against overexpansion of the industry. There was a danger in producing a commodity in excess of consumptive requirements. On this point he said:

"There seems to be an idea prevalent among the pulp and paper people that if demand does not keep up with production, all you have to do is reduce production and put up the price, and that will straighten matters out for the time being. So it will—for the time being. But it is a bad principle of business to suppose that that can go on for any length of time. Something will happen. If you go on building and overproducing it will be almost impossible to keep some kind of a break from coming. It is not a wise policy to depend on curtailment of production and advance of price."

The importance of the pulp and paper industry in maintaining the equilibrium of Canada's trade came in for approving mention. The contribution of the pulp and paper industry to the export trade of Canada was a most important factor in maintaining the trade balance of the Dominion. "The paper business, without importing anything practically, has a favorable trade balance from exportation and this is a great asset to the Dominion of Canada," said he, in conclusion.

A Pleasing Gift—At this luncheon, L. R. Wilson, retiring president of the association, was the recipient of a beautiful memento of his activities on the building committee of the Pulp and Paper Research Institute. George Chahoon, Jr., toastmaster, called on George Carruthers to make the presentation of a solid replica in silver, with wooden lining, of the new Pulp and Paper Research Institute at McGill University. Intended as a cigar humidifier it will be useful as well as ornamental. An inscription on the cover reads:

> "Presented to Lee Roy Wilson, Esq., by the Canadian Pulp & Paper Association, in recognition of his invaluable contribution to its welfare during his term as president, 1926-27, and in token of the high regard in which he is held by his fellow members. January 27, 1928."

President's Annual Dinner

The annual dinner of the association, the President's Dinner, as it has come to be known of late years, took place in the ball-room of the Ritz Carlton Hotel, on Friday evening, and was a colorful, bright and interesting function. The tables were decorated attractively with flowers and at each plate was a handsome menu, which had as a frontispiece a well executed engraving, the portrait of Col. Charles Hugh LePailleur Jones, president-elect of the association, who presided at the dinner. In front of retiring President Wilson, who sat at the left of the Toastmaster, Brig.-Gen. J. B. White, D.S.O., was a large frosted cake, a replica of the humidor which had been presented to Mr. Wilson earlier in the day, which it will be recalled was a miniature representation of the Pulp and Paper Research Institute. The principal speakers were the Hon. Joseph H. Dillon, K. C., M.L.A., John W. Dafoe, and Sir Arthur Currie. Others at the speakers' table, besides those mentioned were J. A. Bothwell, F. J. Campbell, George Carruthers, George Chahoon, Jr., F. W. Clarke, Col. C. H. L. Jones, George M. McKee, Dr. R. F. Ruttan, Alexander Smith and Percy B. Wilson.

An Eloquent Speaker—Mr. Dillon responded to the toast "Our Country," as proposed by George H. Montgomery, K. C., in a speech marked by great eloquence and powerful oratory. He was frank and outspoken in some of his references to conditions in the paper industry, as for instance when he remarked that manufacturers were now experiencing a "Nice-sized jag of overproduction," and, "It will not be long before we have a mill on the Nelson river, which God forbid"—but, he added "Keep your eye on it. The product of that mill will go out through Hudson Bay."

Mr. Dillon is convinced that the twentieth century will be Canada's century, and he dwelt in interesting fashion on the development of industry throughout the Dominion. He asked who would have predicted five years ago that a metal would be manufactured at Arvida, many miles northeast of Quebec, of which the ingredients would be raw materials drawn from the two ends of the earth, one from Greenland and the other from British Guinea.

Praise for the Modern Newspaper—John W. Dafoe, editor of the "Manitoba Free Press", who followed Mr. Dillon, had nothing but praise for the modern newspaper, which is now published as a business proposition, with an editor free and independent. Forty years ago when he was first connected with the newspaper press, the majority of newspapers were organs of this or that political party; many of them did not even pay their way and were that most forlorn of objects, a "kept" newspaper. But things were different now, and he told the makers of newsprint present that insofar as they might be responsible for bringing the modern newspaper into existence they could be easy in their conscience and feel with justice that they had reinforced one of the influences of civilization.

The President of McGill Speaks—Sir Arthur Currie, president of McGill University, spoke briefly at the earnest solicitation of the toastmaster, who introduced him as "A great soldier in time of war and a great citizen in time of peace." Sir Arthur commended the development of closer relations betwen industries and the universities and praised the spirit which had prompted the association to endow a research institute for the study of cellulose problems at McGill University.

N. Emory Bartlett and Y. F. Hardcastle, recently elected vice-presidents of the Pennsylvania Salt Mfg. Co. have also been elected vice-presidents of the Michigan Electrochemical Co. and the Tacoma Electrochemical Co. Wm. D. LeBar has been appointed superintendent of the Pennsylvania Salt Mfg. Co. at Wyandotte, Mich., succeeding Y. F. Hardcastle.

Woodlands Section Hold Meetings

Salaried Logging Engineer Now at Work on Problems of Great Importance

IN CONNECTION with the fifteenth annual meeting of the Canadian Pulp and Paper Association, separate sittings of the Woodlands Section took place on Wednesday and Thursday, January 25 and 26, at the Mount Royal Hotel, where the cabaret dinner was also held. The first day's sittings consisted of business meetings to which only members were admitted.

W. McE. Bowden, chairman of the section, in his annual report to the members, mentioned that the association had granted an appropriation of $6,000 to permit of the employment of a competent logging engineer to carry on research work in connection with woods operations. Alexander M. Koroleff was engaged and had been at work since June, 1927. Mr. Bowden also spoke of a trip that had been made by the members of the section to inspect the operations of Price Bros. & Co. in the Lake St. John area, which had proved instructive and exceedingly enjoyable. Reporting on the finances of the section he said that the year 1927 closed with a credit balance of $4,820.33. But as the expenses of the year had been incurred during the past seven months an appropriation of $4,000 was asked in addition to the present surplus of funds. The section was now engaged in the resolution of problems of major importance, a program having been planned which would mean much to the industry and it was hoped that it would be possible to report definite results during 1928.

Papers Presented

Among the papers presented at the sitting on Wednesday were the following: "Control Work in Forest Administration," by A. W. Bentley, Newfoundland Power and Paper Company; "Unjustified Woods Waste," by J. D. Gilmour, Anglo-Canadian Pulp and Paper Mills, Limited; "Research in Logging," by A. M. Koroleff, logging engineer, Canadian Pulp and Paper Association, and "Mensuration Problems in Logging," by H. R. Soderson, Abitibi Power and Paper Company.

On the following day Dr. C. D. Howe, dean of the Faculty of Forestry, University of Toronto, presented a valuable paper entitled "Future Wood Supply for the Perpetuation of the Pulp and Paper Industry in Canada," and other papers during the day consisted of "Handling Pulpwood—Improved Methods and Machinery," by Captain A. A. Schmon, Ontario Paper Company; "Regeneration of Cutover Area," by E. F. McCarthy, U. S. Forest Service, and "Logging as a Part of Forest Management," by B. E. Claridge, Hammermill Paper Company.

News Print Service Bureau Reelects Officers

At the annual meeting of the News Print Service Bureau which was held immediately following the general meeting of the Canadian Paper and Pulp Association in Montreal on Friday, January 27, all officers who served during 1927 were reelected, as follows:

President—Louis Bloch, Crown-Willamette Paper Company, San Francisco.

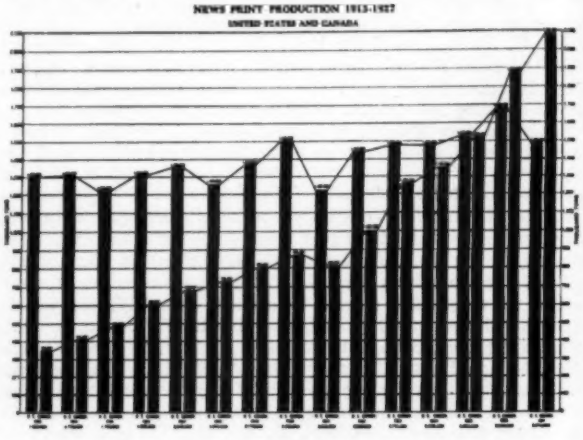
Vice-President—F. J. Campbell, Canada Paper Company, Windsor Mills, P. Q.

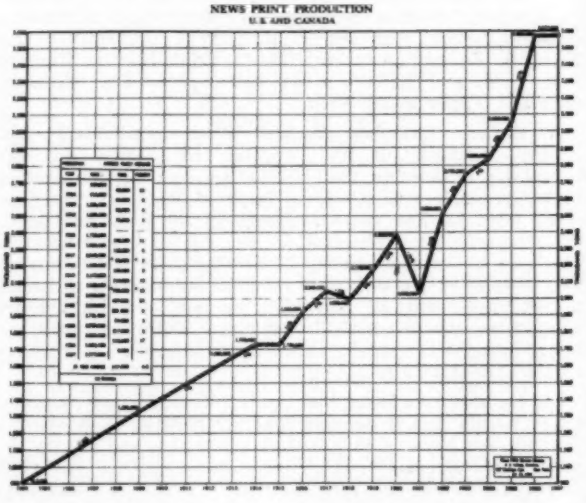
Secretary-treasurer—R. S. Kellogg, New York.

Executive Committee—Percy B. Wilson, chairman; J. L. Apedaile, A. R. Graustein.

In the annual report of Secretary Kellogg, it was shown that Canada has attained world leadership in the production of newsprint paper, Canadian mills having manufactured 600,000 tons in excess of United States mills in 1927. The Canadian increase of 200,000 tons last year balanced a decrease of equal amount in the United States, so that the total supply for the two countries was not changed.

There has been a great regional shift in production of newsprint. To a total continental output 3,789,000 tons, Canada contributed 55 per cent, the United States 39 per cent, and Newfoundland 5 per cent. Canadian production of 2,087,000 tons was 11 per cent more than in 1926, while United States production of 1,485,000 tons was 12 per cent under 1926. Newfoundland's production of newsprint paper in 1927 was 203,000 tons, or 16,000 tons more than the preceding year. Mexico's contribution to the continental total was 14,000 tons. In a chart which accompanied Mr. Kellogg's report, the continued increase in production of newsprint paper in Canada was graphically set forth. In 1913, the total production of newsprint paper in Canada was 350,000 tons, as compared with 1,305,000 tons produced in the United





States. The annual production in Canada shows a mounting scale until 1921, when the production was 808,000 tons, as compared with 876,000 tons in 1920; but from 1922 straight on through to 1927 the red line of Canada's advance stands out in striking fashion on Mr. Kellogg's chart. In 1925, the production of the two countries was almost equal, United States figures being 1,530,000 and Canadian 1,522,000. In the next year, 1926, the United States mills produced 1,686,000, but Canada overtopped this with a production of 1,882,000. As previously told, United States production dropped in the following year of 1927 to 1,485,000 while Canada's production soared to 2,087,000, the peak figure for that country, and the combined figures of both countries, 3,572,000, representing the largest amount of newsprint paper ever produced in North America.

Where the Paper Goes

It is interesting to note the distribution of the newsprint paper made in Canada. Last year, 85 per cent of it was shipped to United States publishers and 6 per cent overseas. United States exports of newsprint amounted to

only 12,000 tons. Of the Newfoundland shipments, 88,000 tons came to the United States and the remainder went overseas. In addition to these sources, United States newspapers also received 121,000 tons of paper from Europe, chiefly from Scandinavia.

Record of New Machines

Mr. Kellogg gave details of the increased capacity of mills by the introduction of new machines. In the nine years from 1919 to 1927 inclusive, eighty-two new machines, with a capacity of 6,700 tons daily, were added to the North American newsprint industry. These new machines, together with increased efficiencies of older machines, constituted a doubling of industry capacity during this period.

Daily Tonnage in North America

The daily tonnage production of newsprint paper in North America was stated to be 15,000, divided as follows: Newfoundland, 700; United States, 5,600; Canada, 8,700.

Additional machines in various stages of construction and installation which will be ready to operate before the fall of 1928 will, Mr. Kellogg said, increase production 1,500 tons daily.

Salesmen's Annual Meeting Feature of Paper Week

The automobile industry is a "key industry," whose well-being is of major importance to the business world, according to O. P. Pearson, statistician of the National Automobile Chamber of Commerce. Mr. Pearson will be the speaker at the annual meeting of the Salesmen's Association of the Paper Industry, to be held in the East Room of the Waldorf-Astoria, Thursday, February 23, at 10:30 A. M.

This is not a new discovery to most business men, but the decline in the automobile industry in 1927 and its prospective recovery this year, accompanied by many startling changes, have emphasized this fact as never before. Mr. Pearson's talk on the relation of his industry to the general business situation will, therefore, be one of the most interesting features of Paper Week and the Salesmen's Association is to be congratulated on securing him as the speaker at its annual meeting.

The speaker at the association banquet on Monday evening, February 20, will be F. D. Van Amburgh, editor and publisher of "The Silent Partner," a monthly magazine with a wide circulation through direct subscription only. He is well and favorably known as an inspiring speaker on topics of direct interest to salesmen, and members of the Salesmen's Association speak highly of his ability to combine entertainment with instruction.

State Officials Discuss Stream Pollution

Officials of the Minnesota Izaak Walton League arranged a meeting at Minneapolis on December 21, 1927 between representatives of the pulp and paper industry of the State and State officials, to discuss stream pollution and a constructive program in stream improvement. C. M. Baker, engineer of the American Paper and Pulp Association, was present and discussed the problem of stream pollution in some detail. Harmony prevailed throughout the meeting, representatives of all factions indicating an excellent spirit of co-operation.

The following committee, representative of the industry, was appointed to co-operate with the American Paper and Pulp Association and local officials in the problem: C. K. Blandin, president, Itasca Paper Co., chairman; W. H. Kenety, Northwest Paper Co.; Harry L. Cheney, Minnesota and Ontario Paper Co.; Carl E. Sager, Hennepin Paper Co.; H. C. McDaniel, Waldorf Paper Products Co., and O. L. E. Weber, Watab Paper Co.

Prior to the association's meeting in February, Mr. Baker will visit mills in Michigan, New York, Massachusetts, and other Northeastern States. He will present a paper on the Technical Problems of Waste Disposal in the Paper Industry before the Technical Association, and in regard to the policies and procedure in this problem before the American Paper and Pulp Association. A room will be assigned to Mr. Baker for conferences, and those having problems in waste disposal are urged to get in touch with him during the convention to discuss the association's program in waste utilization and stream improvement. Arrangements will be made during the convention for a conference of the sulphite mill interests to organize a co-operative program regarding the utilization of these wastes, concerning which there have recently been important developments.

New Manager of Waxed Paper Association

The American Waxed Paper Association, composed of fifteen members and representatives of more than 70 per cent of the waxed paper tonnage, has chosen Paul S. Hanway as the manager and treasurer of the association. The appointment was made after Mr. Hawley had demonstrated that he possessed a conception of the problems of the industry and a business-like method in attacking these problems. Mr. Hanway was graduated from Lehigh University School of Business Administration in 1916, having completed the regular four-year course in three years. During the war he served as Captain in the U. S. Marine Corps. In addition to his command of a mounted company, he was Battalion Adjutant, intelligence officer, athletic director and officer in charge of construction.

Mr. Hanway came to the American Paper and Pulp Association from the Brookmire Economic Service where he had been sales manager.

Mr. Hanway's name has been recurrent in the columns of THE PAPER INDUSTRY during the past year. His articles have been brief and pointed and have shown an understanding of the main problems of the paper industry. Mr. Hanway has been an able contact man for the American Paper and Pulp Association in establishing good relations between the association and the various governmental departments at Washington Under Dr. Hugh P. Baker, he established an admirable record for accomplishment in statistical and economic fields.

Graphic Industries Exhibit, Inc.

The recent Graphic Arts Exposition in New York, resulted in sales by exhibitors which in most cases were so large as to exceed all expectations. From this Exposition has been evolved the idea of supporting the Graphic Industries Exhibit, Inc., as a permanent exhibit where manufacturers of machinery, equipment and supplies for the printing, lithographic and allied industries may keep their products on display at a central point, accessible to the buyers they serve. Such an organization establishes contact between the buying and selling branches of the industry.

In selecting a site for this exhibit, location and accessibility, with respect to the industries themselves, were recognized as essentials. These are admirably embodied in the Master Printers Building at Thirty-fourth St. and Tenth Ave., New York City. This location is within three blocks of the Pennsylvania Station and General Post Office, and the receiving and shipping facilities of the building itself are exceptional.

Some of the features of the exhibit are, space for display and demonstration, floor man service to explain demonstrating in absence of representative, telephone sales service, stenographic service, mailing address, use of private conference rooms, in fact, every convenience that the manufacturer has in his own office.

Changes in Bailey Meter Personnel

The Bailey Meter Co., Cleveland, O., announces the appointment of M. Greenberg as Acting Manager of its Pittsburgh Office, located at 402 Oliver Building. Mr. Greenberg, formerly manager of the company's St. Paul office, will now have charge of the sales and service work in the Pittsburgh territory.

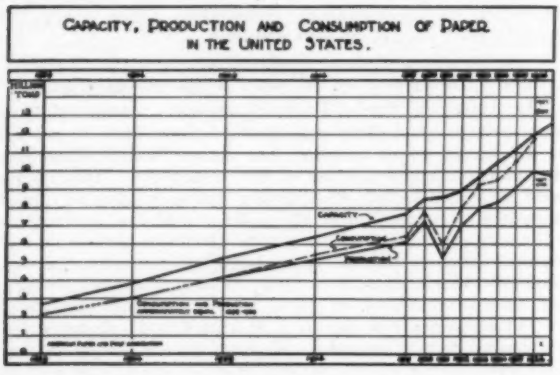
The former Pittsburgh manager, E. Brosius, sailed for Durban, South Africa, on January 28, to take charge of the installation and adjustment of Bailey automatic combustion control equipment recently shipped to that point for a new pulverized coal fired boiler plant.

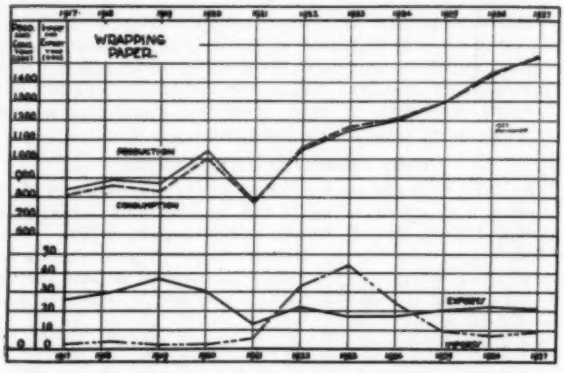
Graphic Presentation of the Paper Industry in the United States

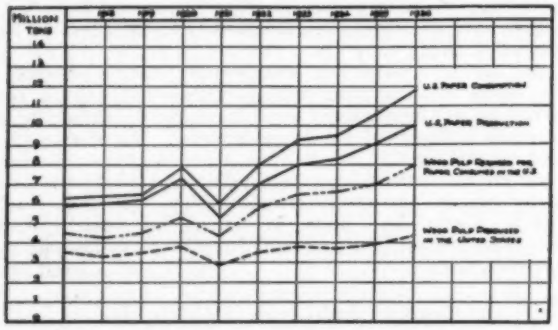
Prepared and Distributed by the American Paper and Pulp Association

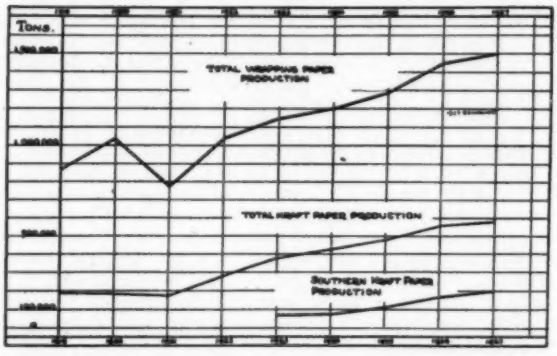
THE data upon which these charts are based were obtained from reports to this association by individual members, affiliated and other associations within the industry, the Bureau of the Census, Bureau of Foreign and Domestic Commerce, Survey of Current Business, Dept. of Agriculture, etc.

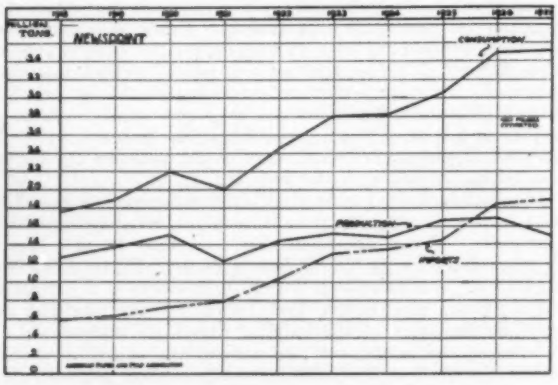
These charts were prepared in ac-

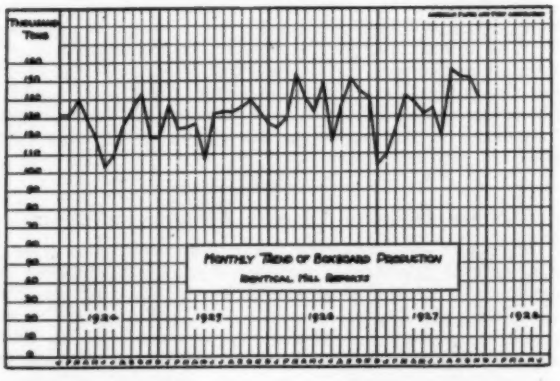


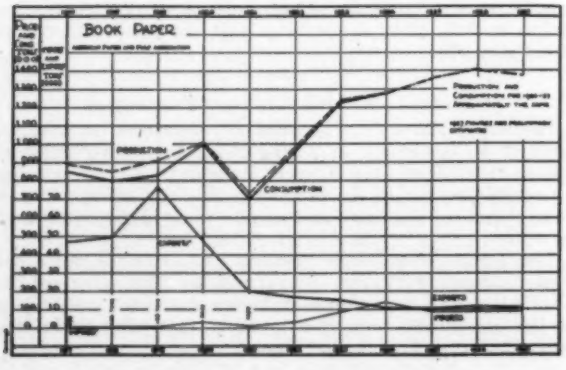


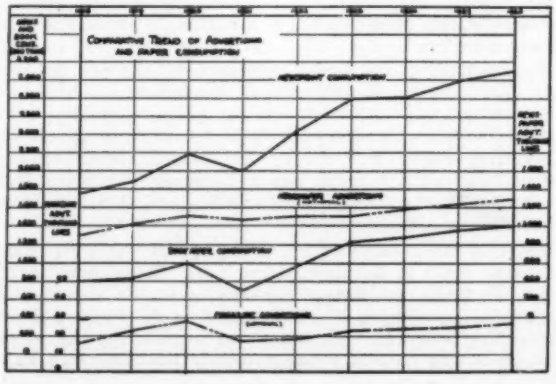






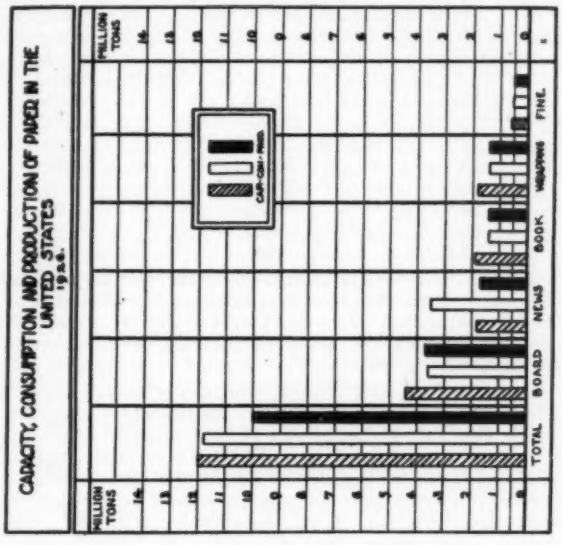


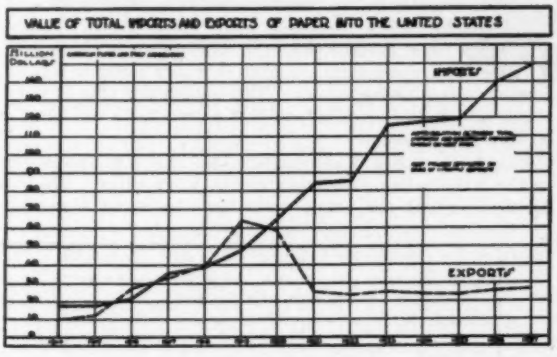


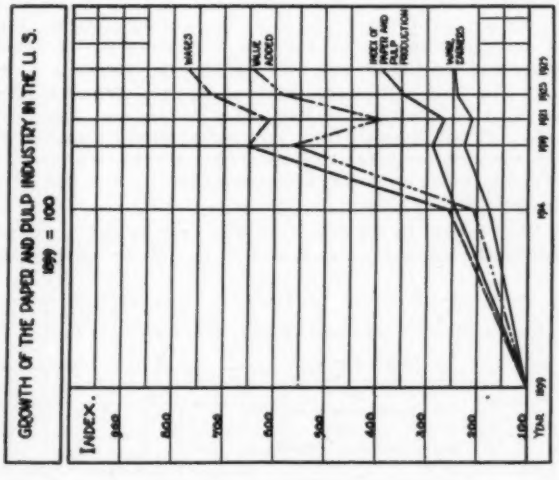


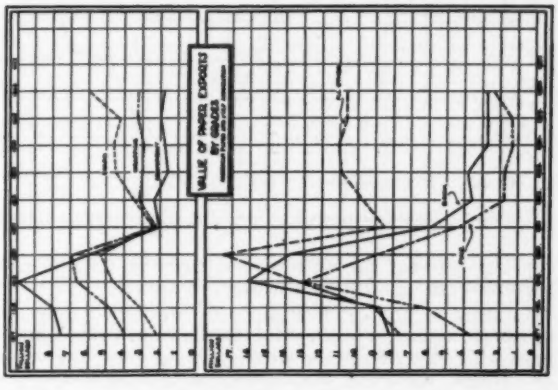
cordance with the policy of this association to illustrate comparative and useful statistics now available in order that the industry may better picture its basic trends.

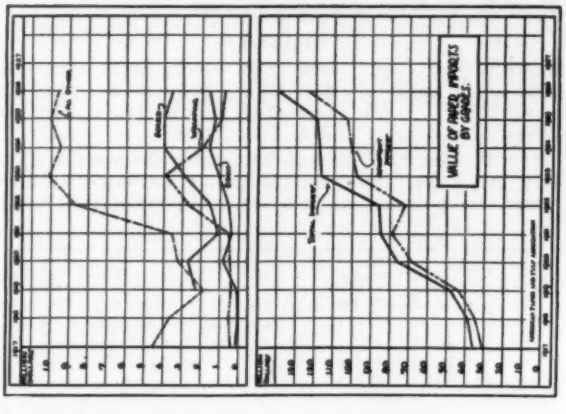
Signed: Hugh P. Baker, Executive Secretary; Paul S. Hanway, Statistician; J. A. Kavanagh, Assistant Statistician.

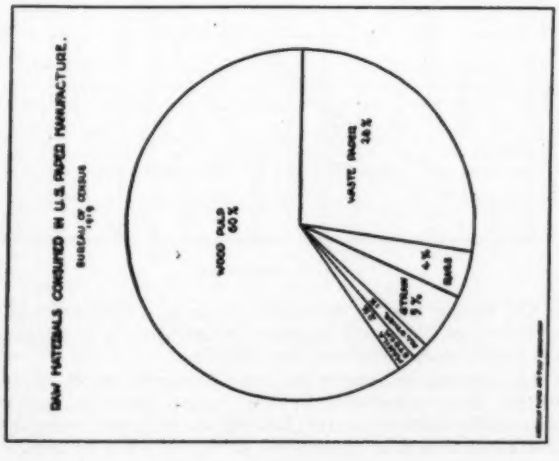


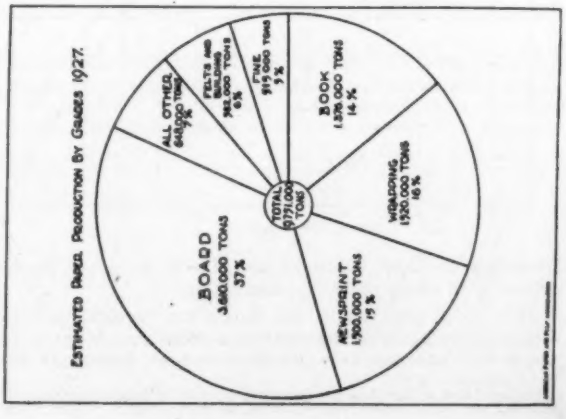











ESTIMATED PAPER PRODUCTION BY GRADES 1927.
BOARD 3,660,000 TONS 37%
NEWSPRINT 1,500,000 TONS 15%
WRAPPING 1520,000 TONS 16%
BOOK 1,320,000 TONS 14%
FINE 515,000 TONS 5%
FELTS AND BUILDING 582,000 TONS 6%
ALL OTHER 648,000 TONS 7%
TOTAL 9771,000 TONS

A Study of Fourdrinier Wire Life [1]

By Dr. JOHN CAMPBELL, Director of Reasearch,
and Mr. H. G. WALES, Research Department
Abitibi Power & Paper Co., Iroquois Falls, Ont.

IT HAS been noticed that the useful life of a fourdrinier wire on a newsprint machine in many mills is less in the summer than in the winter. The reason for this is very obscure, and it is the object of this paper to throw some light on this phenomenon.

Fourdrinier wire is composed usually of a phosphor bronze in the warp wires and brass in the weft wires. The reason for this is that the warp wires have to stand abrasion and

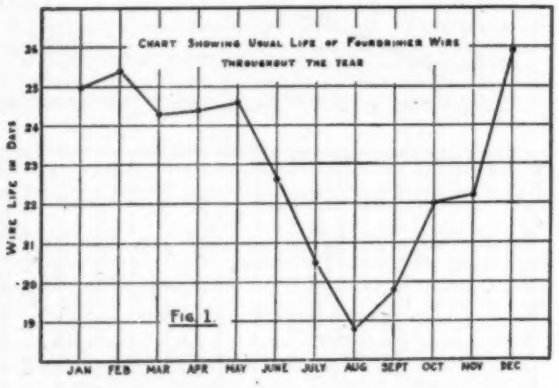


CHART SHOWING USUAL LIFE OF FOURDRINIER WIRE THROUGHOUT THE YEAR
WIRE LIFE IN DAYS
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
FIG. 1

bending, whereas the weft wires simply act as a filler, and therefore can be made of a cheaper material.

In order to find out how the wire life varied from month to month, a chart was prepared, as shown in Table 1 and Fig. 1, in which the life of the wire is plotted along the ordinate, or vertical, axis, and the corresponding months are plotted along the abscissa, or horizontal, axis.

TABLE I

Month	Jan.	Feb.	Mch.	Apl.	May	June
Wire life in days.....	25	25.4	24.3	24.4	24.6	22.6
Month	July	Aug.	Sept.	Oct.	Nov.	Dec.
Wire life in days.....	20.5	18.8	19.8	22	22.2	25.9

In this chart it will be seen that during the months of June, July, and August, the wire life rapidly decreases; but as the colder months come on, that is, during October, November,

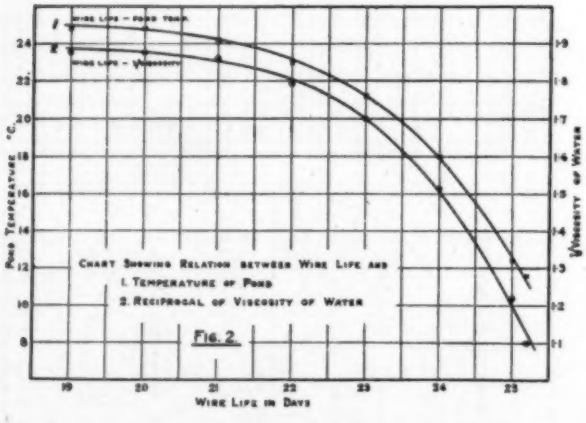


CHART SHOWING RELATION BETWEEN WIRE LIFE AND
1. TEMPERATURE OF POND
2. RECIPROCAL OF VISCOSITY OF WATER
FIG. 2
POND TEMPERATURE °C.
VISCOSITY OF WATER
WIRE LIFE IN DAYS

December, January, February, and March, the life of the fourdrinier wire again reaches a maximum.

This chart stirs up in our minds the thought that some factor is operating in the summer months that does not operate, or that operates only to a slight extent, during the winter months. The factor that immediately suggests itself is temperature. So with this in mind, Fig. 2 was plotted from Table 2.

TABLE II

Wire life in days.	Temp. °C. of pond.	Reciprocal of viscosity of water
19	23.50	1.94
20	23.50	1.94
21	23.10	1.91
22	21.85	1.85
23	20.00	1.76
24	16.30	1.60
25	10.40	1.32
25.2	8.00	1.28

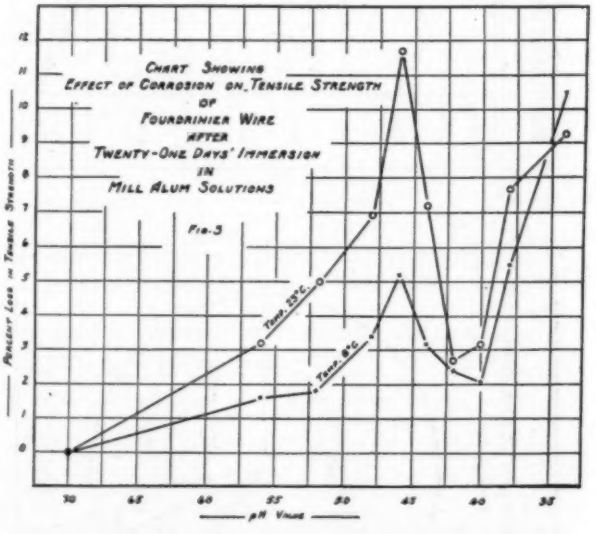
Here the wire life is plotted along the vertical axis, while the temperature of the stock in the head box is plotted along the horizontal axis. This chart shows in a very striking manner that temperature is certainly an important function of fourdrinier wire life.

Let us now consider in some detail the principal factors that affect wire life, and how they are influenced by temperature.

The first factor that should be considered is abrasion, and it is generally assumed, and we believe correctly, that most of the abrasion of the wire is due to the suction boxes. Of course, if there is any slippage, a certain amount will come from the couch roll. When the abrasion of the wire by the suction boxes is examined with regard to temperature, it is seen that during the warmer months, the lubricating action of the water between the wire and the suction boxes is less. In other words, due to the decrease in viscosity of the water, which is a partial measure of its lubricating property, there is more grinding action between the covers of the suction boxes and the fourdrinier wire during this season.

In Fig. 2, it will be noticed, is plotted the reciprocal of the viscosity of the water leaving the wire, and the wire life in days. It will be seen from this curve, when compared with the temperature-wire life curve, that the two run parallel, which is to be expected, since viscosity is a function of the temperature.

With regard to the couch roll, the wearing out of the wire due to the warmer water should be less in the summer than



in the winter; that is, due to the decrease in lubricating effect of the water, there will be less slippage between the wire and the couch, and, therefore, less abrasion.

In summing up, the effect of temperature on the abrasion of the fourdrinier wire by the suction boxes is increased during the warmer months; but any abrasion due to the lower couch roll should be diminished during the same months.

[1] Paper read at the Annual Meeting of the Technical Section, Canadian Pulp and Paper Association, Montreal, Jan. 25-26, 1928.

The second factor that might affect wire life is the acidity of the water due to addition of alum.

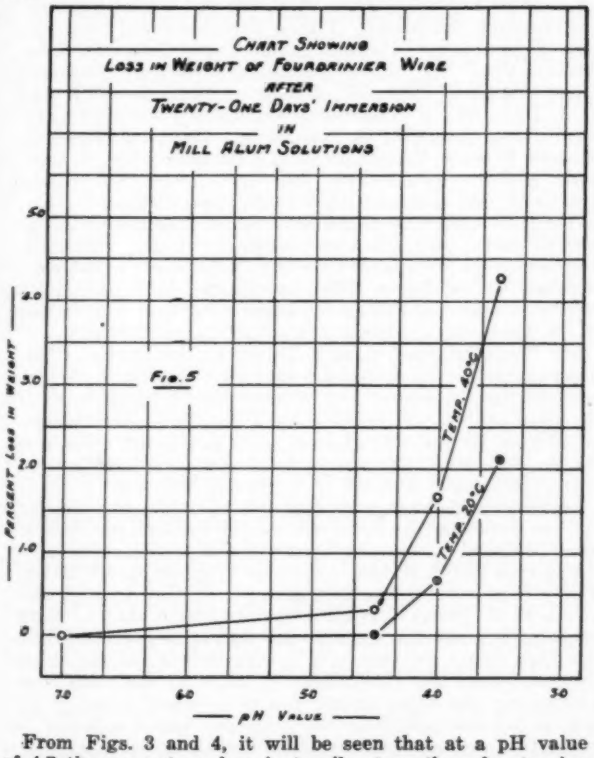
In order to determine the corrosive action of alum on fourdrinier wire, solutions of alum of various strengths were made up. Strands of fourdrinier wire were placed in these solutions, which were kept at a constant temperature and left for 21 days. At the end of this period, the wires were taken from each solution and tested for decrease in weight, tensile strength, and percentage loss in elongation.

A similiar experiment was then repeated at a higher temperature, in order to determine the influence of temperature on the corrosion of the wire by the alum. The results of these tests are shown in Figs. 3, 4, and 5, and Tables 3, 4, and 5.

In Fig. 3 is plotted the percentage loss in tensile strength along the vertical ordinate, and the pH value of the alum solutions along the abscissa, for temperatures of 8°C. and 23°C.

In Fig. 4 is plotted the percentage loss in extension of the wire on the vertical axis, and the pH value of the alum solution along the horizontal axis, for temperatures of 8°C. and 23°C.

In Fig. 5 is plotted the percentage loss in weight along vertical axis, and pH values of the alum solution along the horizontal axis, for temperatures of 20°C. and 40°C.



From Figs. 3 and 4, it will be seen that at a pH value of 4.7 the percentage loss in tensile strength and extension of the wire reaches a maximum; also at a pH value of 4.2 a minimum point is reached on these charts. Any stronger solutions of alum than 4.2, that is to say, at lower pH values, the corrosive effect of the alum again asserts itself.

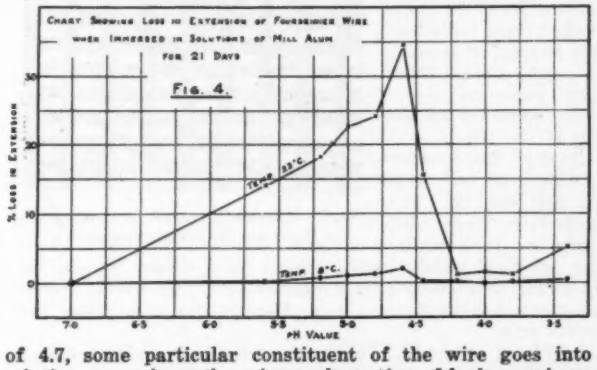
In the chart, Fig. 5, the loss in weight due to the corrosion of the alum takes a rapid rise at pH value of 4.5. In dilute solutions of alum, that is, at high pH values, the corrosive effect is scarcely noticeable even at a temperature of 40°C.

TABLE V

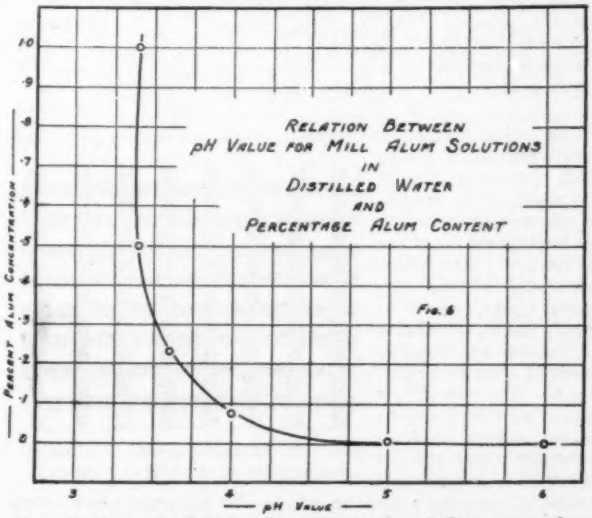
Percentage Loss in Weight Due to Corrosion.
Time of Immersion — 21 days

	pH VALUES							
Temp.	7.0	6.5	6.0	5.5	5.0	4.5	4.0	3.5
20°C.	0	0	0	0	0	0	.65	2.1
40°C.	0	0	0	0	0	.3	1.65	4.25

The reason for these maximum and minimum points on the curves is probably due to the fact that below a pH value



of 4.7, some particular constituent of the wire goes into solution, or perhaps there is an absorption of hydrogen ions; in stronger solutions, that is, above 4.7 to 4.2, there is deposited on the surface of the wire a protective coating, prob-



ably aluminum hydrate, whose protective influence reaches a maximum at pH of 4.2. Above 4.2, the protective influence of the aluminum hydrate entirely disappears, and a straight solution of the constituents of the wire results.

TABLE III—Percentage Loss in Tensile Strength on a 4.9 c. m. length of Wire. Time of Immersion—21 days.

	pH Value									
Temp.	7.0	5.6	5.2	5.0	4.8	4.6	4.4	4.2	4.0	8.3	3.4
23°C.	0	3.18	5.04	5.30	6.88	11.70	7.16	2.65	3.17	7.69	9.25
8°C.	0	1.60	1.85	2.62	3.40	5.25	3.16	2.37	2.09	5.51	10.50

TABLE IV—Percentage Loss in Extension on a 4.9 c. m. length of Wire, Time of Immersion—21 days.

	pH Value										
Temp.	7.0	5.6	5.2	5.0	4.8	4.6	4.4	4.2	4.0	3.8	3.4
23°C.	0	14.2	18.3	22.8	24.3	34.6	15.7	1.3	1.7	1.3	5.4
8°C.	0	0.2	0.8	1.2	1.4	2.2	0.4	0.4	.0	0.2	0.6

For purposes of comparison, Fig. 6 is included, showing the relation between pH value of mill alum solutions in distilled water, and percentage alum content.

These effects as outlined above were visually noticed on examinations of the wire after being removed from the alum solutions.

Altogether it may be said that the effect of temperature on corrosion of fourdrinier wire by mill alum, certainly has an important influence on wire life.

The third and last factor that will now be considered is bending. As the fourdrinier wire revolves on the machine it undergoes on its return journey from the couch to the breast roll a certain amount of bending up and down, which must have an important influence on the life of the wire.

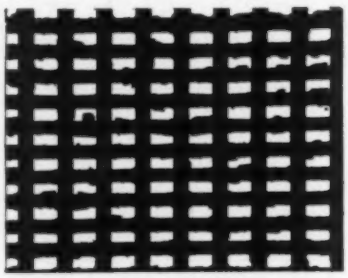


Fig. 7—Photomicrograph showing deposit on fourdrinier wire.

During the summer months, it has been noticed that the wire surface in the interstices of the fourdrinier wire get partly coated with a hard brown translucent material; it is apparently deposited from the water, and is especially noticeable on the portion of the wire under the deckle strap.

In Fig. 7 is shown a photomicrograph of a piece of wire with this material deposited in the interstices, and for purposes of comparison, Fig. 8 shows another wire without this deposit, but of a slightly larger mesh.

The deposit on analysis shows the following composition:

	Per cent
Alumina (Al_2O_3)	17.8
Loss on Ignition	82.2
	100.0

The material lost on ignition is of organic origin, and very probably is humic acid, produced from the wood. This deposit on the wire is increased by increasing the alkalinity of the white water by adding say, fresh water, which in most cases, contains carbonates and bicarbonates of lime and magnesia. The deposit is also increased, as stated before, by temperature, like most chemical reactions, and makes it necessary for the wire to be trimmed more often in the summer than in the winter. If, however, the edges of the wire can be kept clean, the number of trimmings is reduced.

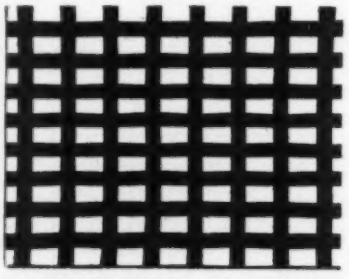


Fig. 8—Photomicrograph showing fourdrinier wire without deposit.

Let us now return and investigate the effect of this deposit on the bending in and out of the wire. When the wire bends on a roll, the warp wire touches the weft, or shoot, wire, and in bending it conforms to the round surface of the shoot wire. Also, if the portion of the warp wire touching the roll is in compression, then the warp wire on the opposite or top side will be under expansion. Now, if a portion of the deposit works its way in between the surfaces of the warp and shoot wires, it will cause uneven stress on the warp wire, and cause it, in time, to crack out. This, then, is the summer effect of temperature on the bending of the fourdrinier wire.

Summary

It has been shown in this paper that the decrease in wire life is a direct function of the temperature of the stock in the head box.

The effect of temperature on the main factors that affect wire life, such as erosion, corrosion, and incrustation, is then discussed, and it has been shown that the effect of each of these factors is most decidedly increased by temperature; the predominating factor will probably be different for each mill, due to different conditions.

In closing we wish to thank Mr. J. E. Patterson, mill manager, and Mr. E. Silver, general superintendent, for their helpful suggestions and advice.

Mill Executives Discuss Stream Improvement

The American Paper and Pulp Association's engineer, C. M. Baker, met with representatives of the Kalamazoo mills early this month to discuss one of the common and important problems of the industry, namely, waste utilization and stream improvement.

Mr. Baker outlined the program of the association's national committee on Waste Utilization and Stream Improvement, and discussed his activities in this matter since the Chicago meeting of the committee in November last.

The following mills, through their representatives, as listed below, assured Mr. Baker of their desire to co-operate with him in effort to develop waste utilization and stream improvement through the pooling of their experience and research: Felix Pagenstecher, president, Bryant Paper Company, Kalamazoo; Geo. W. Gilkey, secretary-treasurer, Michigan Paper Company, Plainwell; J. Kindleberger, president and R. A. Hayward, of Kalamazoo Vegetable Parchment Company, Kalamazoo; W. A. Hodge, secretary and manager, Western Board & Paper Company, Kalamazoo; Wm. J. Lawrence, Western Paper Makers Chemical Company, Kalamazoo; Geo. Gerpheide, president, Hawthorne Paper Company, Kalamazoo; Lewis Dickenson, Standard Paper Company, Kalamazoo; E. Stone, Mac Sim Bar Company, Otsego; Merrill B. King, president, Rex Paper Company, Kalamazoo; G. S. Davis, secretary, Allied Paper Mills, Kalamazoo; A. E. Curtenius, secretary-treasurer, Kalamazoo Paper Company, Kalamazoo; W. M. Loveland, president, Watervliet Paper Company.

Mr. Baker reported at some length on the present situation regarding co-operation between State and mill officials, emphasizing the desirability of ascertaining precisely what the situation was as regards need for stream improvement, as affected by the effluent from pulp and paper mills, and the desirability of the utmost harmonious co-operation between the industry and the State officials involved.

Proposed legislation providing for scientific investigation and the development of economical and practical methods of waste disposal to prevent stream pollution—as outlined in the Browne Bill H. R. 8561—was also discussed by Mr. Baker. This matter was subsequently gone into further with officials of the U. S. Forest Service, with the thought that it might be possible to tie this up with the McSweeney-McNary Bill, and thus obtain the necessary appropriations and the direct co-operation of the Forest Service, while, at the same time, eliminating the objectionable and unnecessary focus of attention by the public on the pulp and paper industry in connection with its mill effluent, which would result from the Browne bill.

Sandy Hill Installs New Roll Grinder

The Sandy Hill Iron and Brass Works, Hudson Falls, N. Y., has installed another roll grinder of the latest type, electric driven, having forced feed oiling system, and will grind rolls as large as 30 inches in diameter by 180 inches face, either convex, straight, or concave, on their own journals.

The grinder is accurate, grinding rolls with a tolerance of not over ¼ of 1/1000 inches in diameter. It is of the geared head type, arranged to give proper surface speed for rolls, geared for regulating the lateral speed of the grinding wheels, and is equipped for handling either wood, cast iron, stone, chilled iron, steel bronze or rubber covered rolls.

Particular attention is given to the shipment of rolls which are thoroughly greased and well boxed. An accurate history is kept of all rolls ground, each carrying a number showing the crown and other important points so that the grinding can be duplicated at any time.

Program of 51st Annual Convention of American Paper and Pulp Association, Waldorf-Astoria Hotel, New York City

MONDAY, FEBRUARY 20, 1928

AFTERNOON

2:30 Southern Kraft Manufacturers Ass'n..Room 112

EVENING

7:00 Salesmen's Association of the Paper Industry, Annual Dinner..Waldorf Roof Garden

TUESDAY, FEBRUARY 21, 1928

FORENOON

10:00 Tissue Paper Manufacturers Ass'n...Room 110
10:30 American Paper and Pulp Association, Annual Meeting .....Astor Gallery
10:30 Bristol Board Manufacturers .....Room 114

AFTERNOON

1:00 President's Luncheon .....Room 115
2:30 American Paper and Pulp Association, Annual Meeting .....Myrtle Room
2:30 Cover Paper Manufacturers Ass'n....Room 110
2:30 Sheet and Kraft Tissue Divisions—Tissue Paper Manufacturers Association..Room 112
2:30 Napkin and Toilet Paper Divisions—Tissue Paper Manufacturers Association..Room 109

WEDNESDAY, FEBRUARY 22, 1928

FORENOON

9:30 Technical Association .....Myrtle Room
9:30 Cost Association of the Paper Industry Room 115
10:00 Tag Board Manufacturers .....Room 106
10:00 Writing Paper Manufacturers Ass'n..East Room
10:30 American Waxed Paper Association..Room 141
10:30 Cardboard Manufacturers Ass'n.....Room 109

AFTERNOON

1:00 American Waxed Paper Association, Luncheon .....Room 142
1:00 Binders Board Manufacturers Association, Luncheon .....Room 114
1:00 Glazed and Fancy Paper Manufacturers Association, Luncheon, Canadian Club.... ..... Hotel Belmont
1:00 Paper Makers Advertising Club, Luncheon .....Room 112
1:00 Cost Association of the Paper Industry, Luncheon .....Room 115
2:30 Southern Kraft Manufacturers Ass'n..Room 109
2:30 Fine Paper Division—Writing Paper Manufacturers Association .....Room 110
2:30 Sulphite Bond Division—Writing Paper Manufacturers Association .....East Room
2:30 Technical Association ..Myrtle Room, 106, 151
4:00 Cloth Tape Division, National Ass'n of Gummed Tape Manufacturers..Waldorf Hotel

EVENING

7:00 Technical Association, Dinner Commodore Hotel

THURSDAY, FEBRUARY 23, 1928

FORENOON

9:30 Technical Association....Myrtle Room, 106, 110
9:30 Cost Ass'n of the Paper Industry....Room 112
10:00 National Association of Gummed Tape Manufacturers .....Room 141
10:30 American Waxed Paper Association..Room 109
10:30 Salesmen's Association of the Paper Industry .....East Room
10:30 Converting Paper Mills Association ...Room 114
10:30 Wrapping Paper Manufacturers Service Bureau.....Tea Lounge and Sun Parlor
10:30 Woodlands Section, A. P. & P. A.....Room 115

AFTERNOON

1:00 American Waxed Paper Association, Luncheon .....Room 100
1:00 National Association of Gummed Tape Manufacturers, Luncheon .....Room 142
1:30 Wrapping Paper Manufacturers Service Bureau, Luncheon..Tea Lounge and Sun Parlor
2:00 Cost Ass'n of the Paper Industry....Room 112
2:30 National Association of Gummed Tape Manufacturers .....Room 141
2:30 American Waxed Paper Ass'n.....Room 109
2:30 U. S. Pulp Producers Association....Room 114
2:30 Technical Association .....Myrtle Room
2:30 Woodlands Section, A. P. & P. A.....Room 115

EVENING

7:00 American Paper and Pulp Association, Reception .....Astor Gallery
7:30 American Paper and Pulp Association, Annual Banquet .....Grand Ball Room

Toastmaster—President D. C. Everest

Speakers—Judge Marvin B. Rosenberry, Rev. Dr. Nehemiah Boynton.

Room 151 will be used for conferences during the Convention by the Import Committee and the National Waste Utilization and Stream Improvement Committee.

Large Digester Order

The Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis., have recently placed an order with the Biggs Boiler Works Co., Akron, O., for nine large sulphite digesters 14 ft. in diameter by 40 ft. long, to be made of 1-⅛" steel plate.

This order, which is the largest single order for digesters placed by any plant or mill for many years, is for the Consolidated Water Power and Paper Company's plant at Appleton, Wis. Some of the old papermakers in Wisconsin may recall a similar order placed by the late Grover Cleveland and Robert (fighting Bob) J. Evans for eight digesters, 13 ft. by 40 ft., in 1890. These were installed at Interlake Pulp and Paper Co. Division, Appleton, Wis., and we understand that some of the men are still with the Consolidated Water Power and Paper Co. who were active at that time.

Delivering Pulp Cargoes by Water to Albany, N. Y.

The A. P. W. Paper Co. of Albany, N. Y., is now shipping pulp from its mills in Nova Scotia direct to the company's own pulp storage yards recently completed at Water Side, N. Y., without rehandling. Cargo boats now sail up the Hudson River, dock at high tide, and depart on the next high tide after unloading their cargoes.

The pulp storage yard, which was designed and built by the H. K. Ferguson Co. of Cleveland, O., resembles an aeroplane hangar in appearance. It accommodates a stock pile 50 feet wide, 150 feet long and 40 feet high, and is served by a five-ton crane. The entire area is covered with an eight-inch concrete floor and is roofed with corrugated metal which extends down the sides to protect the pulp from the weather.

At the annual meeting of the Board of Directors of the W. A. Jones Foundry & Machine Co., Chicago, January 30, 1928, Warren G. Jones was re-elected president and general manager. G. W. Page, who assumes the position of vice-president has been with the company for almost 30 years and is director of purchases. Wm. F. Coleman is the new treasurer and general superintendent. J. A. Sizer is secretary and office manager.

Program of 13th Annual Meeting of T. A. P. P. I.

Waldorf-Astoria Hotel, New York City

WEDNESDAY, FEBRUARY 22, 1928

9:30 A. M. **General Session** (Myrtle Room), E. C. Tucker, Chairman.
President's Address.
Report of Secretary-Treasurer.
Appointment of Committee on Nominations.
Report of Standing Committees.
Report of Joint Vocational Education Committee by R. S. Kellogg.
Paper:
*Structure of Wood and its Penetrability,
by G. W. Scarth, Botanical Department, McGill University, Montreal, P. Q.

2:30 P. M. **Sectional Meetings.**

MYRTLE ROOM **Heat, Light & Power**	ROOM 151 **Paper Testing**	ROOM 106 **Cellulose**
E. F. Troop, Chairman	**B. W. Scribner, Chairman**	**W. E. B. Baker, Chairman**
The Use of Low Pressure Steam in Paper Manufacture—Warren B. Lewis.	Ink Resistance of Printing Papers—E. O. Reed.	Permanence of Paper—Dr. Th. Bentzen.
The Development of Waste Heat Recovery—S. W. Fletcher.	Dot Method of Fiber Composition of Paper—C. E. Libby.	Effect of Residual Acid on the Rate of Deterioration of Paper—W. F. Hoffman.
Power Requirements for Pumping Paper Stock—R. K. Annis.	Count of Dirt Particles in Fine Papers—C. R. Tait.	
The Starting Generator System Applied to Sectional Paper Machine Drive—R. R. Baker.	Adherence of Mineral Coating—R. H. Savage.	
	Grease Resistance—H. A. Smith.	
	The Emanueli Porosity Tester.	
	Expansion of Paper with Varying Humidity—R. C. Griffin.	

6:30 P. M. **Thirteenth Annual Dinner** (Commodore Hotel).
Speakers:
Dr. Edward R. Weidlein, President of the American Institute of Chemical Engineers and Director of the Mellon Institute of Industrial Research, Pittsburgh, Pa.

Dr. Hollis Godfrey, President of the Engineering-Economics Foundation, Boston, Mass.

THURSDAY, FEBRUARY 23, 1928

9:30 A. M. **Sectional Meetings.**

MYRTLE ROOM **Stuff Preparation**	ROOM 106 **Mechanical Pulp**	ROOM 110 **Training for the Industry**
G. K. Spence, Chairman	**S. C. Brayton, Chairman**	**Allen Abrams, Chairman**
Control of Beater Furnish to Eliminate Foaming on the Paper Machine—G. K. Spence.	Automatic Grinder Development—A. E. Parrett.	Technically Trained Men For the Paper Industry—H. G. Noyes.
Some tests on a Jordan Using Kraft Pulp—J. S. Little.	Artificial Grindstones, Anti-Friction Bearings and Vacuum Thickener Developments—W. E. Brawn.	
Hydrogen Ion Measurements in the Pulp and Paper Mill—W. F. Hoffman.	Refiners to Reclaim Groundwood Screenings—S. C. Brayton.	
	Technical Control in the Groundwood Mill—R. J. Schadt.	

2:30 P. M. **General Session** (Myrtle Room), E. C. Tucker, Chairman.
Report of Nominating Committee.
Election of Officers.
Papers:
*Technical Problems in Waste Utilization and Stream Improvement,
by C. M. Baker, Engineer of the American Paper and Pulp Association.
Radio Control of Moisture in Paper Drying,
by W. D. Sommerville of the Eastern Manufacturing Company, of South Brewer, Me.

*Indicates papers with lantern slides.

Sulphite Lye as Dust Binder

For several years sulphite lye has been proving itself satisfactory as a dust binder and for improving the roads in Sweden. As such it is placed on the market by the A. B. Svensk Spirit in Stockholm, in a thickened condition with a specific weight of 1.3, and 32 degree Baume and 52 per cent dry substance; but also in a powdered form with 90 per cent dry substance. The **VDI-Nachrichten** of Dec. 14, 1927, states that in 1925 there were sold 767,528 kg. of the thickened lye and also 10,864 kg in powdered form for spraying purposes on streets and roads. In 1926 the consumption increased to 1,367,845 and 133,563 kg., respectively. The sulphite lye not only binds the dust, but also lowers the cost of maiptaining the roads. Thus, on a single road the use of coarse sand was reduced from 645.5 cubic meter to 121 cubic meter in the years 1924 to 1926, and the use of macadam from 86 cubic meter to nothing. One figures that 1 kg. of thickened lye or 0.5 kg. of lye in powdered form is required per square centimeter of road surface for the first thorough treatment and a few after-treatments.

Recently F. Benson and R. Karlberg have worked out a method which is patented in Sweden, which has been applied with good results in Norkoeping. In this process the road surface sprayed with the sulphite lye is treated afterwards with a water-attracting and absorbing salt, as for instance calcium chloride. Since this draws moisture from the air, the road surface remains damp and pliant also in warm and dry weather. For 1000 liter or hygroscopic lye solution one uses 210 kg. calcium chloride (70 per cent), 300 liter of thickened lye and 580 liter of water.

Al Kroes

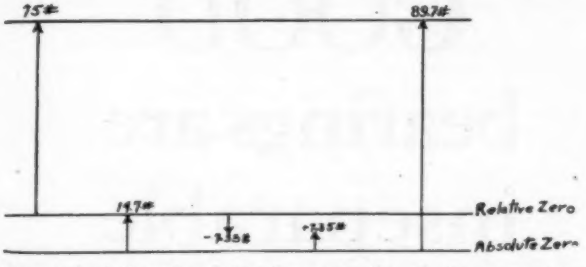
Al Kroes, Director of Safety Education of the Employers Mutual Liability Insurance Co., Wausau, Wis., passed away January 30, 1928. Although Mr. Kroes had not been in good health for some time, his death came as a shock to his associates.

Mr. Kroes' duties involved the giving of shop talks, safety entertainments with lantern slides, safety moving pictures and foreman's informal smokers. He established a unique and original method giving these talks, using large cards, illustrating the hazard which work was the product of his artistic hand. His intense interest in safety moved him to always portray these hazards for the interest of the workmen and their families, and he served them in this capacity to the best of his ability.

Practical Helps for the Mill Man

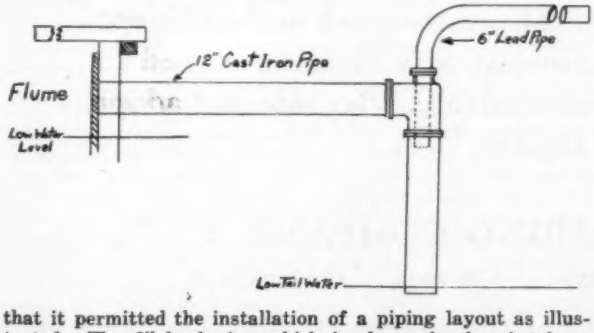
Relative and Absolute Pressure

THE terms, relative and absolute pressures, are often confusing to one not constantly making use of pressure gauges. The ordinary pressure gauge is designed to indicate the pressure above that of the atmosphere. As atmospheric pressure changes according to altitude and barometric variations, calculations involving the properties of steam are commonly based on absolute pressure. Atmospheric pressure is usually assumed to be 14.7 pounds per square inch at sea level, but for other elevations it must be determined by barometer readings. Absolute pressure, therefore, is equal to gauge pressure plus atmospheric pressure. Therefore, all relative pressures are positive when greater than atmospheric pressure, and negative when less than atmospheric pressure. A standard gauge reading 75 pounds per square inch when interpreted as absolute pressure becomes 89.7 per square inch. The relation between absolute and relative pressure is shown in the following diagram.



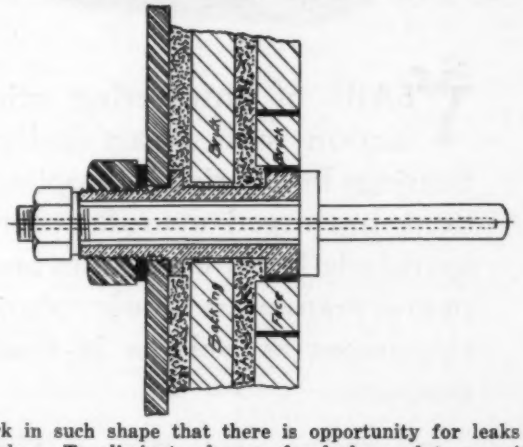
Method of Eliminating Gas from Atmosphere in Blowing a Sulphite Digester

A WELL known Mitscherlich sulphite pulp plant was confronted with a problem relative to the elimination of gas from the atmosphere during the blowing of a digester. Apparently complaints had been entered by inhabitants in the vicinity of the plant and it became necessary to carefully study the problem. After looking over the layout of the plant, the engineer decided to make use of natural advantages. A short distance from the digester house was located the mill flume. The level of the water in the flume was of such a height that it permitted the installation of a piping layout as illustrated. The 6" lead pipe which is shown in the sketch as entering the elbow and extending a short distance below the low water level of the water retained by the flume is connected to the "blow-off" line from the digester at the time of blowing. Water entering the cast iron pipe from the flume creates a suction within the lead pipe and thus pulls the steam and gas through this line causing it to be discharged along with the water in the cast iron pipe through the water leg into the stream below the flume. It is possible to stand directly above this piping installation during the blowing of the digester without any ill effects. It is well to remember that in the blowing of such a digester it is simply a question of relieving the pressure within the digester. The stock in the digester is removed after the release of pressure. This piping arrangement simply makes use of a well known principle which is employed in the construction of pumps for laboratory purposes where the pumps are commonly installed on water faucets. It seems that numerous applications for such an arrangement around a plant could be easily developed.



Digester Fittings for Sulphite Digesters

THE average life of a sulphite digester lining from a number of observations appears to be 7 to 10 years, while the life of an ordinary fitting is only approximately 3 years. The average fitting for pressure or temperature service would, therefore, under ordinary circumstances require replacement at least two or three times during the life of a lining. To change one of these fittings is the work of one-half to one day with the added necessity of permitting the digester to cool down prior to making the repair. The workman always is in a hurry to complete the task, and oftentimes because of unavoidable conditions is apt to leave the work in such shape that there is opportunity for leaks to develop. To eliminate chances for leaks, and to permit a fitting to be changed in about thirty minutes without patching or molesting the lining is the function of the fitting illustrated in the accompanying sketch. This device is recommended for use in this connection by a well-known firm of engineers who specialize in the pulp and paper field. It should be noted that the sleeve is always protected on the inside by the collar of the respective fitting. All threads should be made on the sleeve to conform to local mill standards.



New Use for Waste Products

According to **The Engineer** of London, of January 13, 1928, it is reported from Stockholm that a method has been introduced of utilizing the waste products of the sulphite pulp factories and the sawmills for the production of an industrial and domestic fuel.

The sulphite lye is evaporated, mixed with sawdust and the waste of the sawmills, and then dried. The resulting product, containing about 60 per cent of the dried sulphite lye and about 40 per cent of dried wood, is pressed into briquettes for use as domestic fuel or ground into powder for industrial steam-raising purposes.

The C. R. Whiting Co. of Newark, N. J., has been incorporated under the New Jersey laws to deal in paper, with a capital of $125,000.

GOOD equipment and GOOD bearings are inseparable

YEARS of unwavering satisfaction with Hyatt Roller Bearings in a variety of applications has urged manufacturers to include Hyatt economies and performance in their plant equipment as well as in their products.

For Hyatts are built to endure many years of the most grueling service conditions. Wherever heavy loads, stresses, shocks and dirt are encountered, they stand up unflinchingly.

Hyatts are rugged, precision bearings—practically immune to friction and wear. They need no adjustments or attention of any kind for years, except an occasional lubrication. And they live as long as the machine or part to which they are applied.

These are good and sufficient reasons why Hyatts are used so extensively. Play safe and adopt Hyatts.

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The Month at Washington

WHEN the House tabled the Senate resolution for tariff reduction with about the same majority that the Senate passed its resolution, the effort to bring about a lowering of the tariff came to naught. However, the Senate now proposes to tag the same idea on the tax revenue bill when it sends that document back to the House, and so the "tariff" is bound to be a future battle ground for the Congressional Solons, but no definite information is forthcoming until March 1st when the Senate hopes to have the revenue bill in shape. Whether the new bill affects the paper industry remains to be seen. Nothing can be predicted at this time.

Reforestation Bill Passed by Senate—The McNary bill, passed by the Senate February 6, amends the Clarke-McNary act of 1924 for the purchase of forested cutover, or denuded lands within areas of navigable streams with a view to the protection of navigation, flood control, and the production of timber, authorizes the expenditure of $40,000,000 over an eight year period.

Forestry advocates expect the passage of the bill by the House at any early date. Senator McNary (Rep. Ore.), in explaining the measure to the Senate, said that all lands purchased thus far are located in the East and South. Under the present bill, he said, it was intended to purchase 3,000,000 acres additional in the eastern highlands, 3,500,000 acres additional in the pine regions of the South, and also 2,500,000 acres in the Lake States of Michigan, Wisconsin and Minnesota.

Advancement of Metric System in Progress—Hearings have been in progress on the Tilson and Britten bills (H. R. 7208 and 10), which provide for the ultimate advancement of metric system standards in all weighing and measuring after 1935. The American Institute of Weights and Measures opposed the legislation on behalf of manufacturing concerns throughout the country. The plan proposed by the Institute provides for the conversion of the English units of length to units of length in the metric system by the inch-millimeter rate, which has a distinct advantage over the yard-meter link.

Import Combinations Proposed—Import combinations, legalized for importation of certain raw materials, are proposed by identical bills introduced in the House and Senate recently by Senator Jones of Wash. and Representative Newton of Minn., (S. 2312 and H. R. 8927). These bills amend the Webb-Pomerene export act of 1918 to permit combinations to form for the importation of raw materials certified by the Secretary of Commerce "to be controlled by any foreign government, combination or monopoly". Whereas the Webb-Pomerene Act frees export combinations from the restraints of the anti-trust acts, the present bills would permit group purchasing of foreign-controlled raw materials, with similar freedom from restrictions, but also with proper safeguards in the public. Such American combinations could not artificially or intentionally enhance prices to the American consumer. They may not accumulate unreasonable stocks or stifle or lessen competition, being amenable in this respect to the jurisdiction of the Federal Trade Commission. The Secretary of Commerce appeared before the House Committee on the Judiciary on behalf of these bills. The Secretary of Agriculture also approves this legislation. A number of national trade associations also appeared before the committee, favoring this legislation.

Scope of Fed. Trade Com. Claimed Detrimental—Several unsuccessful attempts were made recently by legislators in both houses to restrict the scope of inquiries of the Federal Trade Commission, particularly alleged violations of the anti-trust acts unless undertaken by request of Congress. It is alleged that the Commission has overstepped its powers and proved a detriment to business. Those favoring the commission, however, pointed out the great good accomplished in many directions by the investigations of the Commission and the resultant benefits to business in maintaining lawful competition.

More Protection Sought for Inventors—Testimony detailing the manner in which the public, and particularly the inventor, is often victimized by unscrupulous practices of unauthorized patent attorneys, was presented to the House Committee on Patents in support of the Cramton Bill (H. R. 5527), designed to provide penalties for persons unauthorized to or disbarred from practice in connection with the business of the Patent Office, also contemplating changes in the classification of persons registered for practice in the Patent Office. Paper manufacturers with patent claims will be protected in the future if the proposed legislation is enacted.

Bills Introduced in Congress—The following bills have been introduced in Congress since the last issue: "H. R. 7017, by Congressman Hare, S. C., to require manufacturers engaged in interstate and foreign commerce to give written notice to the Federal Trade Commission of the closing of their plants, referred to the Interstate and Foreign Commerce Committee of the House".

H. R. 8745, Congressman Vestal, Indiana, amending the statutes of the U. S. with respect to letters patent for invention and application therefor, referred to the House Committee on Patents.

Congressman Browne of Wisconsin, introduced a supplementary bill to his H. R. 5488, being H. R. 8561, to provide for the conduct of scientific investigations by the Forest Service to discover economically practical methods of the disposal of the waste materials of pulp and paper mills without polluting stream and for other purposes, referred to the House Committee on Agriculture.

Congressman Welch of California introduced H. R. 8557, to provide for the establishment, operation, and maintenance of foreign trade zones in ports of entry of the U. S. to expedite and encourage foreign commerce and for other purposes, which was referred to the Committee on Interstate & Foreign Commerce.

Congressman Wood of Indiana, in H. Con. Res. 19, provides that Congress encourage the use of American materials in American-made goods, also referred to the same committee.

Congressman Vestal would also amend the copyright law in order to permit the U. S. to enter the International Copyright Union, H. R. 9586, and referred to the House Committee on Patents.

Congressman Andresen of Minnesota, in H. R. 9838 proposes to amend subdivision A of section 4 of the act to establish a uniform system of bankruptcy throughout the U. S. referred to the Committee on the Judiciary.

Congressman Newton of Minnesota, in H. R. 8927 would amend the act to promote export trade and for other purposes, approved April 10, 1918, referred to the Judiciary Committee.

Congressman Vestal in H. R. 9358 would amend the statutes of the U. S. with reference to copyright registration of designs, referred to the House Committee on Patents.

Any reader of these columns should feel free to write the editor for a complete report on any of the bills here mentioned or legislation now before Congress, or for such other information as he may wish, which will be furnished by our Washington representative without charge.

Recent Income Tax Rulings—Goods shipped to fill orders taken on sample were rejected by consignees within the taxable year—held, that such shipments were not sales and the rejected goods were properly included in petitioner's closing

HEADQUARTERS

FOR DEPENDABLE SIZE

KALBFLEISCH supplies Sizes that are suitable for every type of paper stock. They share one important characteristic—each is a splendid representative of the Kalbfleisch quality standard.

Your requirements may indicate the finest grade of Gum Rosin Size, or conditions may be such that other grades are entirely suitable for your purpose. You will find that Kalbfleisch will be able to satisfy you.

For unbleached stocks, we recommend Kalbfleisch Wood Rosin Size. Results are equal to the more expensive Gum Sizes where lightness or whiteness is not essential. This type of size has the further advantage of being considerably lower and more stable in price.

Kalbfleisch Technical Service can be of great assistance on paper making problems. It is based upon wide experience and extensive research. The experts on this staff are in close touch with developments and improvements in the industry and consequently can render valuable services.

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Chattanooga, Tenn. De Quincy, La. Waterbury, Conn.

inventory (Morrison Co., Docket 9543), says the U. S. Board of Tax Appeals.

Amounts set aside by the petitioner out of its annual income for self-insurance are not ordinary and necessary business expenses and, therefore, are not deductible in computing net taxable income (L. R. Thompson Co., Docket Nos. 10315 and 9679), says the Board in another decision.

When the petitioner's mill and equipment was destroyed by fire and insurance was collected in an amount greater than their depreciated cost, and the petitioner erected and installed a new mill and equipment, using plants and blueprints of the destroyed mill, at a cost greater than the amount of insurance collected on the destroyed mill, the Board ruled that no loss was suffered, and that the difference between the cost of the new mill and the amount of insurance collected on the old mill, should be capitalized (Pelican Bay Co., Docket 6354).

If you make alterations and improvements in your office or elsewhere about the plant, it is necessary that you show the character of the work done and the cost of the different items, otherwise the Board will disallow your claim for deduction as ordinary and necessary business expenses (Docket No. 8932).

Interstate Commerce Rulings—Rates on wrapping paper, in carloads, from Bogalusa, La., to Dallas, Texas, were found not unreasonable in Dallas Paper Co. vs. Texas & New Orleans R. R., No. 18789, and the complaint was dismissed by the Interstate Commerce Commission.

Proposed reduced interstate rates on import and coastwise shipments of newsprint paper, in carloads, from Lake Charles, La., to Shreveport, La., over the Kansas City Southern were found justified by the Commission in I & S Docket No. 2966, but proposed increased rates on like traffic over the Missouri Pacific were found not justified.

Reparation was awarded on 30 carloads of newsprint paper shipped from Millinocket, Me., to Washington, D. C., in National Republican Pub. Co., vs. B. & O. R. R., No. 17091, the rates on which were found unreasonable.

Rates on paper envelopes, in carloads, from West Carrollton, O. to Atlanta, Ga., were found not unreasonable and the complaint was dismissed in Whitaker Paper Co. vs. Cleveland, Cinti., Chicago & St. Louis Rwy., No. 18535.

Rating on paper pan liners, in less than carloads, in official, southern and western classifications, and class rates governed thereby from Boston, Mass., were found unreasonable, in Sherman Paper & Box Co. vs. Akron, Canton, & Youngstown Rwy. Co., No. 18851, and reasonable ratings were prescribed and reparation awarded.

Studying Business Trends—Herbert Hoover has appointed a committee to study shifts and trends in American business, with himself as chairman, and assisted by the Bureau of Economic Research. The committee is composed of leading business men and economists to inquire into the changes in economic business currents in this country, covering shifts in employment, changes in methods of production in industry and in distribution, shifts in relative price levels and profits, movements in the business cycle, shifts in standards of living, foreign trade and foreign credits, etc. It is expected that the inquiry will take some months and will be made of the most exhaustive character.

Bureau of Standards Improves Quality of Paper—A report recently issued by the Bureau of Standards on its paper research for the past year shows that the bureau is continuing its usual active work in paper problems. Studies of paper testing methods led to the development of several new methods and testing instruments. Some additional standards of quality and methods for determining them were also developed in studies of various paper products. The value of a variety of fibrous raw materials for making paper was determined by papermaking tests in the bureau semi commercial paper mill. The utilization of waste fiber from the manufacture of rope was found to be feasible for making wrapping paper. The use of glue in paper was worked out with glue manufacturers. A copy of this report is obtainable on request.

Federal Commodity Specifications—The increased use of federal specifications for commodities is reported by the Department of Commerce, showing that manufacturers and buyers are favoring elimination of unnecessary grades and qualities in the interest of economy. The National Directory of Commodity Specifications has just been issued by the Bureau of Standards, showing more than 27,000 specifications covering 5,000 commodities. Further achievements in waste reduction are claimed through the elimination of unnecessary specifications and the establishment of "Commercial Standards". The Department through the Bureau now announces that it is prepared to aid those industrial and commercial groups desiring to establish standards of grade and quality for their products or their purchases, or to secure relief in instances where the current variety in grades, qualities, and specifications is a burden on the producer, and a handicap to the purchaser. The Bureau's service in this direction includes a certificate and labelling plan wherein goods manufactured according to commercial standards approved by the Bureau may be so labelled and certified to by the manufacturers. This affords a greater protection to the purchaser and at the same time strengthens the manufacturer's selling arguments. Any paper manufacturers interested should address R. M. Hudson, Commercial Standards Division, Department of Commerce, Washington, D. C.

Supreme Court Decisions—Is a telegraph company liable for making an error in quoting a price of a commodity which is accepted, is the substance of two cases recently argued before the U. S. Supreme Court (Nos. 183 and 189). The action was to recover damages for the telegraph company's negligence in changing a telegram delivered to it, offering an item for sale at 50c a pound, and changing it so as to read as 15c per pound. The cases involves a simple error in not repeating the message over the telephone, and negligence not being "gross" could not operate to impress liability on the telegraph company, it is claimed. Decision is expected some time this month.

Another case argued before the U. S. Supreme Court is the question whether royalties received by a taxpayer from U. S. patents are taxable under a State income tax law (Long vs. Rockwood Nos. 201 and 202). It was argued that a patent is a privilege or franchise granted under the Federal Constitution and neither the patent nor the income therefrom can be made the subject of State taxation and the States have no power to impair the value of the grant by any taxation whatever.

Trade Association Activities—The Department of Commerce has just issued a 381 page book on "Trade Association Activities", (Domestic Commerce Series No. 20), covering the history and organization of various trade associations and the government's relations with them. The book shows the successful service of trade associations in all fields of service and the promotion of the public and of business interests, the compilation of statistics, simplification and standardization of commodities, arbitration of commercial disputes, development of foreign trade, scientific and economic research, etc., showing also the origin and history of trade associations. On page 199 to 298 is a discussion of paper trade associations and their activity and work.

Foreman Training Courses—A great increase in the number of foreman training courses in practically all lines of industry throughout the country is shown in a survey report just issued by the U. S. Chamber of Commerce in bulletin form, increasing from 105 courses in 1925 to 933 in 1927. These figures indicate that foreman training is looked upon as an agency for greater efficiency in manufacturing. The greater use of intricate and expensive machinery requires not only better trained attendants, but better selected and equipped foremen to lead the personnel for more effective production, says the Chamber. Courses are being carried on by individual manufacturers, industrial vocational agencies, chambers of commerce and manufacturer's associations.

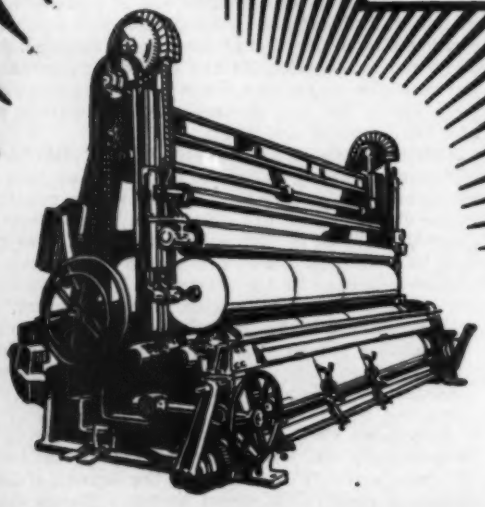
Workmen's Compensation—A liberal policy on workmen's compensation was followed during 1927 by the legislatures of 31 states and in Congress, says the Bureau of Labor Statistics as a result of a recent survey. Eleven states did not change the law. Five states did not have such laws at the beginning of the year. Liberalization of benefits received attention in 21 states. A complete summary may be had upon application to the Bureau by interested parties.

CAMACHINE

The importance of the roll-winding operation definitely fixes the status of the Roll-Winder as an important piece of equipment in paper and board mills. On the Roll-Winder depends whether due credit is done to all of the care and skill in bringing the web up to the reels. Good paper when wound into good rolls leaves nothing to regret, but the best of paper in poorly wound rolls serves to invite dissatisfaction.

Camachines Are Good Roll Winders.

CAMERON MACHINE COMPANY
61 Poplar Street, Brooklyn, New York, U. S. A.



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The Foote Bros. Paper Machine Drive Unit

The old forms of paper machine drives which met the requirements when machines were operated at comparatively slow speeds, do not stand up under the modern high speeds of operation, which cause noise, vibration, rapid wear of bearings and gears, high maintenance cost and breakage, resulting in expensive shut-downs for repairs.

Equipment designed to replace the old style bevel mortise gears, used to a considerable extent in the paper industry for driving the sections in paper machines from a single line shaft, is the complete sectional paper machine drive unit manufactured by Foote Bros. Gear & Machine Co., Chicago, consisting of their IXL "Hygrade" anti-friction bearing type worm gear reducer connected through a Cutler-Hammer magnetic type friction clutch to a tapered pulley, same being mounted on a suitable combination bed plate.

The "Hygrade" worm gear reducer is a modern development entirely different from the old forms of worm gearing. A special design of tooth is used for the high helix angle which assures rolling contact and greatly reduces frictional and heating losses.

The worms are of nickel-steel, carbonized, hardened, ground and polished; worm gears are of chilled cast bronze. Ball, radial and thrust bearings are used on the worm shaft, and ball, radial and Timken thrust bearings are used on the worm gear shaft. The result is a unit of very high efficiency that gives long life under the severest operating conditions.

Other advantages of the "Hygrade" reducers used for this service are said to be: smoother and positive delivery of power at a constant ratio of reduction; high efficiency, resulting in reduced power cost; fully enclosed, so that the reducers are not subject to deterioration from dirt, dust, grit and moisture; safety, because all parts are fully enclosed; reduction of maintenance cost as they are equipped with automatic splash lubrication system.

The complete unit mounted on pedestal is furnished by the manufacturer ready for belting right to the line shaft and connection by flexible coupling to the driven unit, making a very compact and convenient drive.

Stickle Blast Coil Heater

The Stickle Blast Coil Heater is designed primarily to heat air and to absorb the vapor around the machine and ventilating the machine room with the high temperature condensate from the dryers, at the same time to create a vacuum on the return line from the dryers to accomplish the complete removal of air and condensate from the dryers, which is one of the essential points in drying paper. This heater is guaranteed to heat 1,000 C. F. M. of air above 100 degrees F. per ton of paper. In other words, there will be 50,000 cubic feet of air heated per minute above 100 degrees F. for a machine making 50 tons of paper per 24 hours. This supplies sufficient air so that a large volume can be put under the machine to absorb the vapor and dry the under felt. At the same time, the manufacturer claims a direct saving of approximately 15 per cent in steam for drying the paper and the remainder goes into the air ducts for heating and ventilating the machine room. This makes an air cooled condenser on the discharge line from the dryers which shows as high efficiency and economy as a surface condenser does on an engine, according to the statements of the manufacturer. It is said that this is the first blast coil heater of this type that has ever been made to operate on high temperature condensation at a vacuum of 15 inches; no cooling water being used.

The drying of paper is one of the fundamentally important problems in the operation of a paper machine. Tremendous quantities of steam are used daily for this one operation alone. In fact, for every pound of paper manufactured, it is necessary to vaporize and thus liberate from the sheet approximately 2 pounds of water. Three to 5 pounds of steam are commonly estimated to accomplish this work.

Naturally, with such large volumes of steam being required as on any paper machine unit, an equally large quantity of high temperature condensate must be discharged from the paper machine dryers. To prevent precipitation of the moisture laden air over the dryers and to eliminate fog in the machine room, a large volume of dry heated air is required. Three hundred to 400 cubic feet of dry heated air are required to remove each pound of water evaporated on the dryers.

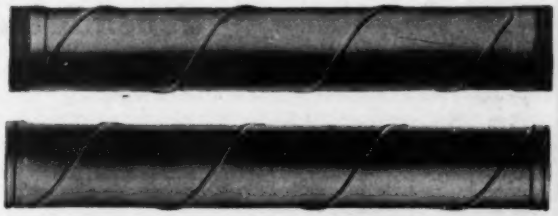
The Stickle Blast Coil Heater or Economizer has been developed on the theory that cold air coming in contact with a radiating surface will condense the steam within the radiator, thus creating a vacuum therein and permitting the high temperature condensate to boil freely at a reduced boiling temperature. The heater may be likened to a surface condenser with the exception that the heater utilizes air for cooling rather than water, and the air is further used for heating or drying purposes whereas cooling water from a condenser commonly finds its way to the sewer.

Stickle Vapor Vacuum Blast Coil Unit consists of a number of flat elongated cast iron tubes horizontally disposed and built up into a continuous return coil system enclosed within a suitable sheet metal casing that is designed to permit air to be drawn through or blown through the area between the coils. The radiation section is designed to prevent the tubes from filling with water, thus leaving a steam liberating space over the surface of the water in each tube. The cold air coming in contact with the radiating surface condenses the steam, and according to the manufacturers creates a vacuum of 15 inches within the tubes (maintaining the same vacuum on the return line from the dryers) and permits the water to boil freely down to a temperature of 175 degrees F. The steam generated by the boiling water keeps the top of tube sections hot. The condensate that vaporizes takes its latent heat from the surrounding water, an effect similar to that produced in a cooling tower, while the unvaporized condensate is returned to the boiler room at a high boiler feed-water temperature through a vacuum pump.

Naylor Pipe Now Made of Toncan Iron

A new pipe combining the advantages of the well known Naylor Spiral Lock-Seam Pipe with Toncan Iron—one of the greatest advancements in the manufacture of commercial iron, has resulted in Naylor Spiralweld Toncan Iron Pipe made of Toncan Iron. Through the combination of these two outstanding products, there is offered the twofold advantages contained in both.

Naylor Spiralweld Toncan Pipe, manufactured by the Naylor Spiral Pipe Co., Chicago, is the only Toncan Iron Pipe made to wrought pipe standards, sizes 4" to 12", 20' lengths,



Upper—Threaded ends for use with threaded pipe fittings or companion flanges and flanged fittings. Lower—Grooved ends for use with victaulic couplings and victaulic fittings.

threaded ends for standard screw fittings, and flanged ends for standard flanged fittings, black, galvanized or asphalt dipped.

Heretofore, Naylor pipe was sold or recommended only for low and medium pressures, but owing to its unusual design, the demand has been made for more general and broader uses. Becoming necessary to make it over for high pressure use, the spiral seam was welded to the wall of the pipe. This additional strength, due to the tightly locked and rolled four ply seam, is not necessary in most instances, but serves as a double safeguard for high pressures. The welded seam makes Naylor Spiralweld Toncan Pipe a pressure conveyance medium comparable to wrought iron pipe, and only half as heavy.

Naylor pipe has long served the manufacturers of pulp and paper, because it has an absolutely smooth inside and true diameter, which provide a minimum of frictional resistance, and reduces to a minimum capillary attraction and

EXPERIENCE

Knowledge gained from over 50 years of making Appleton Wires for American and Foreign paper makers has led to the development of looms of our own design; wire drawn to specification in our own plant; skilled, experienced operators, and a product giving long and dependable service.

Appleton Wires
are good wires
APPLETON WIRE WORKS INC., APPLETON, WIS.

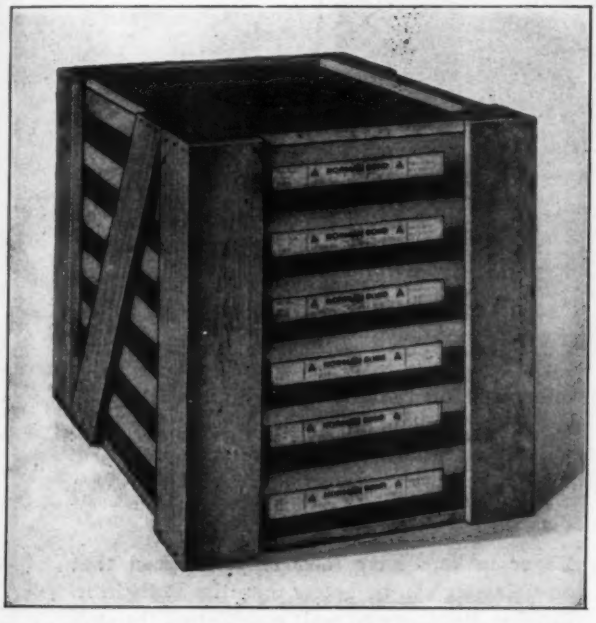
clogging. It has the added advantage of light weight for ease and economy of shipping, handling and installing.

Now made of Toncan Iron and lock seam welded, Naylor Pipe is provided an even longer life and broader application than when made of other materials. Toncan Iron is not materially affected by rust and corrosion from acids and alkalies, which quickly destroy pipe of ordinary iron or steel, and the welded seam gives broader application at higher pressures.

New Eagle-A Carton-Crate Packing

In keeping with the tendency of all industry to standardize and improve shipping and packing methods, Sidney L. Willson, president of the American Writing Paper Co., Inc., has just introduced to the paper trade a new carton-crate method for the packing of flat papers.

The new plan involves first, new individual cartons containing one thousand sheets each, with markers between each



End view of Eagle-A carton-crate showing how readily contents can be determined

250 sheets to facilitate counting. These cartons weigh 35 to 100 pounds so as to be easily handled by one man. A standard carton previously proposed would weigh 125 to 150 pounds and would require two men for handling.

Then, to simplify car loadings and bulk handling, new crates have been introduced to carry a quantity of these small cartons with a net weight averaging 500 pounds to each crate. This means that quantity orders are handled as easily as in the past under the solid case of reams method, and by one man and a hand truck.

The new packing brings to the paper industry a better package, with many distinct advantages to paper merchants, printers and others along the line of paper distribution.

Mr. Willson feels that the characteristics of the new carton-crate method will interest many in the allied industries.

Thomas Arthur Jones

Thomas Arthur Jones, vice-president of W. A. Jones Foundry & Machine Co., Chicago, passed away at his home in River Forest, Ill., January 19, 1928.

Mr. Jones was born December 12, 1864 in Susquehanna County, Pa. He came to Chicago during the World's Fair and became associated with the W. A. Jones Foundry & Machine Co. At the time of his death, Mr. Jones was also president and general manager of the Sackett Screen and Chute Co. of Chicago.

Catalogues, Books and Publications

American Hoist & Derrick Co., St. Paul, Minn.—A folder has just been issued covering the different types of the American Gopher Shovel-Crane. Special features of mechanism are given, illustrated with views of the machine in operation.

Bailey Blower Co., Milwaukee, Wis.—This company has just issued catalogue No. 32, descriptive of its Aerovane Blowers. Details of construction are given with sub-headings, illustrated with figures; also an illustration of an installation in the plant of the Detroit Lighting Commission. Diagrammatic figures of the different types of blowers are given, accompanied by tables giving measurements of the different parts. There are also capacity tables for each of the different types. Copies of this book will be sent upon request.

The Bristol Company, Waterbury, Conn.—A new folder announces this company's newest product, a small size recording thermometer, which uses a chart only 4 inches wide and will give a continuous record for a period of 72 hours without any attention. This instrument is for checking atmospheric temperature in storage rooms, refrigerating units, dairies, residences, etc.

Cutler-Hammer Mfg. Co., Milwaukee, Wis.—"Magnetic Protection," a new book just published by this company, gives complete information on Magnetic Separator Pulleys. Construction and design of all types of separator pulleys is explained in detail, and there are helpful tables giving the cubic feet per hour capacity of all separator pulley sizes and the correct width and thickness of the belts to be used. This book will be valuable to every superintendent, and will be sent free upon request.

DeLaval Steam Turbine Co., Trenton, N. J.—This company has issued a four page leaflet describing the water works pumping equipment of the City of Haverhill, Mass., in which De Laval centrifugal pumps were recently installed. The leaflet is illustrated with cuts of this equipment and comparative figures are given to show the increased capacity at reduced cost.

Lawrence Pump & Engine Co., Lawrence, Mass.—A new Bulletin D-20 describes the Single Stage, Double Suction, Horizontal Split Casing Centrifugal Pump. Sectional illustrations of the types S. S. and H. S. are given with explanatory notes, and a numbered list of parts is included for use in ordering repairs. There is also a table giving the range of capacity and heads for which the different sizes of pumps can be supplied when run at full load speed of electric motors.

Stephens-Adamson Mfg. Co., Aurora, Ill.—The January issue of "The Labor Saver" No. 159, contains a very complete and comprehensive description of the various labor saving devices manufactured by this company. A well illustrated article describes the use of unloading equipment and belt conveyors by barges and dredges on the Mississippi River; the use of conveyor equipment for transporting hogged fuel up and down the Columbia River to paper mills; and complete details and diagram of the Prockter Safety Incline Car Mechanism. There is also an article on S. A. Anti-Friction Bearing Carrier, designed for use in coal mines and the JFS Variable Speed Transmission. Copies will be sent upon request.

Profitable Applications of Industrial Trucks and Tractors in Industry—This handbook of 96 pages and 136 illustrations, is published by The Society for Electrical Development, 420 Lexington Ave., New York City, in co-operation with 20 manufacturers of electrical industrial trucks and tractors, storage batteries and accessories, who are engaged in a co-operative market development program. The book is based on a survey of 200 typical plan operations made by a member of the Survey Committee of the A. S. M. E. There is a special chapter for each of 16 major industries with illustrations of uses in paper mills, and for each industry, the operating processes and particular type of truck suited to individual jobs are described. An outline of operating costs, together with a tabulation of direct savings effected by employing this means of equipment are given. Price $1.00.

PERKINS HOLYOKE

Web Super-Calenders

"No Calender can be better than the rolls in it."

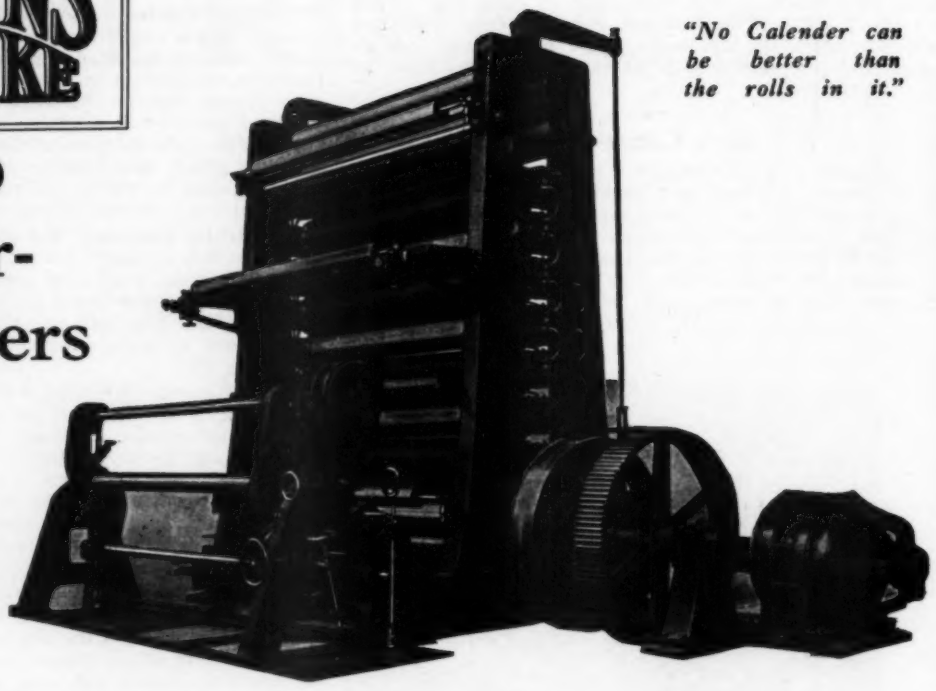


Photo shows
Perkins Nine Roll Web Super Calender with Direct Connected Single Motor Drive Employing Dual Frequency Control.

AN IMPORTANT Factor in the development of Perkins Web Super-Calenders has been the close association of the Perkins organization with the paper makers of America for more than half a century. This experience has produced machinery for finishing paper in the *most satisfactory way it can be done.*

Perkins machines give you that ruggedness necessary for modern operating speeds and conditions. Long service is built into them. Engineering and construction have been accomplished for high efficiency in production, ease of operation, low power consumption and minimum upkeep.

Paper makers have long since realized that no Calender can be better than the Rolls in it. Perkins Rolls are so well established through the years of successful service that these machines are given the most substantial recognition of the industry at large.

B. F. Perkins & Son, Inc., Holyoke, Mass.

TRADE MARK REG. U.S. PAT. OFF.

COTTON ROLLS - PAPER ROLLS - EMBOSSING ROLLS - CHILLED IRON ROLLS - GRANITE PRESS ROLLS - WEB SUPERCALENDERS - GLASSINE SUPERCALENDERS - FRICTION CALENDERS EMBOSSING CALENDERS - SHEET CALENDERS - PLATERS - MULLEN PAPER TESTERS TENSILE TESTERS - VENTILATING FANS - RAG CUTTERS - STOCK CUTTERS - PAPER DAMPENERS BLEACH EJECTORS

BRITISH CORRESPONDENCE

Review of 1927

Probably one of the most important movements in the British paper industry during 1927 was the trend towards organized distribution, with its associated problems of branding and publicity. The fusions and amalgamations which have taken place in recent years, and which have been reported from time to time in this column, have done a considerable amount of good towards clearing a way for improved marketing. Schemes are being commenced for the marketing of mill-branded papers through accredited paper merchants.

Another important feature of the conditions in the industry in 1927 has been the advent of serious Canadian competition. This year the definite supremacy of the Dominion as the world's greatest newsprint-producing country has been established, and the Canadian trade reached a position of affairs which has yet to be rectified, in which supply outpaced demand. In spite of this, the Canadian imports of paper from Great Britain were by no means insignificant, as will be seen from the following figures for 1926 and 1927:

	1926	1927
Total import	$9,987,374	$11,921,192
From United Kingdom	1,293,374	1,518,296

British exports of stationery and paper to Canada increased from 63,792 cwt., valued at £262,849 in 1924, to 66,868 cwt., valued at £263,836 in 1925, and to 73,255 cwt,. worth £290,540 in 1926. British manufacturers consider that although American firms hold many strong natural advantages over their British competitors in the Canadian market, there is no reason why the very substantial lead given by the former should not be considerably reduced. British firms hold their strongest position in printing papers, and important quantities of writing papers in large sheets are also supplied by the United Kingdom; but trade in the latter has declined during the last two years. It is considered by trade experts that British manufacturers should still be able to command a large portion of the Canadian trade in better quality papers of all descriptions, especially book and ledger papers, cover papers, waxed papers, blotting papers, and tissue paper, all of which offer scope for increased business.

Considerably increased interest is now being shown by British paper manufacturers in the activities in the industry in Canada. The fact that output has been restricted in that country has been commented upon freely, and, now that so many Canadian mills are being financed with American capital, the fact that one of the latest newsprint enterprizes in Canada have a British backing has been welcomed. The new mill of the Anglo-Canadian Pulp and Paper Mills, which started work in December, is closely linked with the Daily Mirror Newspapers, Ltd., and has Lord Rothermere as its president. The plant and machinery have been supplied by Charles Walmsley, Ltd., of Bury, Lancashire.

In the wrapping section, manufacturers have benefited by a full and free year of tariff benefits, as the imports of foreign wrappings have fallen in accordance with expectations. In this section, there has been a weeding out of superfluous sizes. Double imperial (29 by 45), double double imperial (45 by 58), casing (36 by 46), extra casing (40 by 48), and double crown (20 by 30) are the standard sizes in regular use.

Market prices for raw materials at the end of last year were at levels considerably lower than the figures listed in the early part of the year. Market prices for wood pulp touched bottom. Statistics for the eleven months of last year do not show an entirely satisfactory state of affairs. Imports of paper and board show an increase of 1,276,026 cwt., compared with the corresponding 11 months of 1926. On the other hand, exports show a decline of 441,931 cwt., the respective figures being 4,426,767 cwt., in January-November 1926 and 3,984,836 cwt., in the corresponding period of 1927. For the same period, imports amounted to 14,388,775 cwt. and 15,664,801 cwt. respectively. In printings, exports for the 11 months fell, compared with 1926 from 3,179,163 cwt. to 2,748,880 cwt., and a decline has to be recorded in every overseas market. In Australia, there was a drop of nearly 120,000 cwt., on the 11 months, due entirely to Canadian competition. For the eleven completed months of 1927, the total export tonnage reached a little over 199,000 tons. This is a decrease of 22,000 tons compared with the same period of last year, and means a loss in revenue of just under £696,000. Imports have increased during the same period, amounting to 783,000 tons, over 40 per cent of the paper consumption of this country, and 63,000 tons more than for the corresponding period of last year. In raw materials, there has been an additional supply of 133,000 tons, of which 100,000 tons can be accounted for by increased output from British mills.

Progress of Standardization—Fast progress cannot be recorded in this direction. In the newsprint section, standard newsprint paper is now generally accepted as referring to a mechanical wood paper made up of 75 per cent mechanical wood pulp and 25 per cent chemical, with a certain percentage of china clay loading to give a good printing surface. It has a substance from 22 to 24 pounds double crown, and a smooth surface that will print course half-tone blocks with good results. As far as white printing and writing papers are concerned, most mills have now definitely adopted the 500-sheet ream for all printing papers, and comparatively few are found made up in the old way with 480 sheets. In some cases, the 504-sheet count has been adopted for all printing papers. A number of the old size-names are beginning to disappear, most of the sizes being now known by their measurements in inches.

British Mills Up-to-date—A leading expert in the trade has stated that British mills were never in a better position to meet any demands that may be made upon them for increased supplies, and the quality which they can now supply for any given price is better than it has ever been. British papermakers, however, still lag behind their contemporaries in Canada in America in regard to sales methods and advertising, and it is said that Continental makers of paper owe much of their success in selling to this country to their advertising methods, for they take twice as much space in British trade journals as do the British makers of paper.

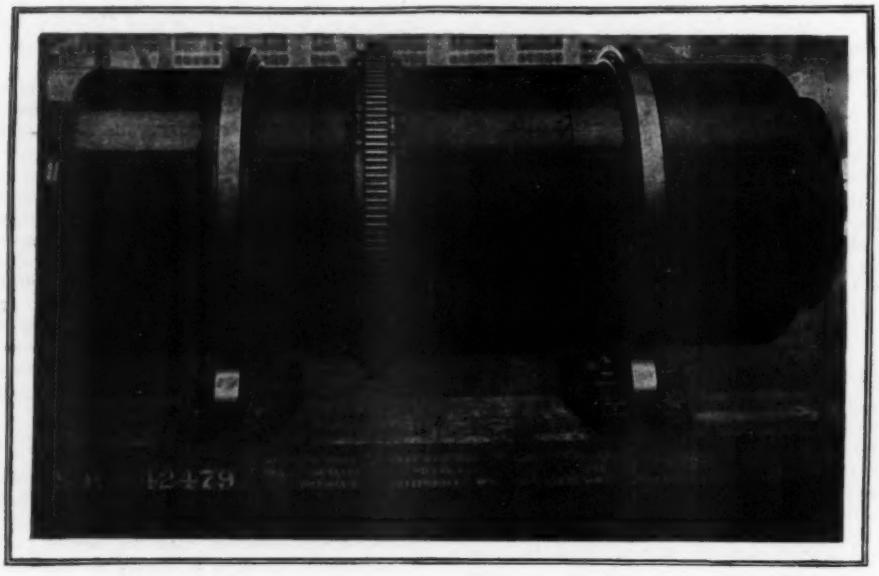
Increase in the Combine Movement—Apropos the reference to combines in the earlier part of this report, it is interesting to know that there are now three big trusts or combines in the paper trade, which own many of the leading daily morning and evening papers, and a large number of the weekly papers and periodicals. These firms control by far the largest portion of newsprint manufacture, and also own mills making paper for other purposes, and printing works and ink mills. One group of daily newspaper publishers now owns six newsprint and pulp mills in England, Canada, and Newfoundland, and the largest ink manufactory in the country. Regret has been expressed in many circles that the last independently-owned national daily, excepting **The Times**, has now been taken over by a group. This paper, **The Daily Telegraph**, has its own paper mills, and was formerly owned by Lord Burnham, in whose family it had been since its inception.

Thirty Years of Papermaking

With its current issue, **The Newspaper World**, London, celebrates its thirtieth birthday, and among the interesting special contributions is one with the above title in which the progress made by the British paper industry during the past thirty years is briefly reviewed. The writer of the article points out that, although superficially viewed the conditions of affairs in the industry is much the same to-day as it was in 1898, a closer examination reveals the fact that things are very different. For one thing, there are now fewer mills working in the country, although there has been a very considerable increase in output, practically all of which has been in newsprint paper.

The writer considers that the greatest development and improvement in ordinary printing papers is in respect to the cheaper grades made with a percentage of mechanical pulp. In those days, if a high finish were put upon super-calendered papers, they had a dull metallic look, which would not now be acceptable for even the cheapest publications.

This Incinerator Will Cut~ Production Costs



ABOVE is a Manitowoc Rotary Incinerator ready for installation in a paper and pulp mill. It is one of many installations where this equipment effects substantial savings.

Manitowoc Incinerators are made in our plants where the construction is under our control at all times. Good, heavy steel, hydraulic riveted joints and careful manufacture make this Incinerator unparalleled.

Like all other Manitowoc paper mill equipment, this Incinerator is outstanding for its sturdy construction and for the dependable service it renders. Remember we design and build equipment to meet the exact conditions of the mill. Let us figure on your requirements.

Rotary Incinerators are made in our own plants and we would be glad to send you our booklet which describes and illustrates the equipment. If you will let us know what your requirements are, we will be pleased to quote accordingly. Write for this booklet today.

MANITOWOC ENGINEERING WORKS
MANITOWOC, WIS.

Let us figure on your:

Barking Drums
Sulphite Digesters
Experimental Digesters
Relief Separators
Bleach Mixers
Clay Mixers
Refiners
Rod Mills
Incinerators
Disc Evaporators
Blow Pipes
Cylindrical Rotaries
Globe Rotaries
Lime Kilns

MANITOWOC

It was during the last war that the British paper trade realized its complete dependence upon outside sources for supplies of papermaking raw materials and finished paper, when imports were restricted to very little more than government requirements, and paper itself was put upon the prohibited list and only imported under special license. For certain classes of papers, especially wrappings such as greaseproof and tissue, the whole of the country's supplies were drawn from continental mills, a source which was almost entirely cut off when cargo boats were diverted from their normal peaceful pursuits to war service. Papermakers then made diligent search for home-grown raw materials. Mills with the necessary boiling plant made use of what straw they could get, waste paper of every possible description was turned out and repulped, and it was even found possible to turn sawdust into a low grade of woodpulp. This period set back considerably the making of good cheap paper, and it was against the effects of this that papermakers had to fight for quite a long time after the restrictions were removed.

In 1920, the industry of papermaking passed through a very critical period, owing to labor troubles, as a result of which the working day for workers in the paper industry was changed from one of two 12-hour shifts to the three-shift system. This additional change, following the doubling of wages paid during the war, increased the cost of papermaking to three times what it was previously.

During the last nine years, the most outstanding feature in the program of British papermaking has been in the enormously increased output of newsprint. Whereas ten years ago the widest machine was 156 inches, there have recently been started up at one new mill, two machines making 221-inch and 228-inch width respectively.

Import and Export Figures

Below are set out the values of the various paper trade products as imported and exported in December, together with the increases and decreases as compared with the corresponding month of the two previous years:—

IMPORTS	December, 1927.	Inc.(+) or Dec.(—) as compared with 1926.	Inc.(+) or Dec.(—) as compared with 1925.
Paper-making Materials...	1,290,491	+135,977	+29,014
Paper and Cardboard.....	1,433,951	+63,368	—74,608

Quantities of the same articles imported:

	Dec. 1925	Dec. 1926	Dec. 1927
Wood pulp, tons.....	146,815	139,100	145,066
Paper, cwt.....	1,400,280	1,368,219	1,534,834

EXPORTS	December, 1927.	Inc.(+) or Dec.(—) as compared with 1926.	Inc.(+) or Dec.(—) as compared with 1925.
Paper-making Materials...	103,010	+13,259	—39,879
Paper and Cardboard.....	749,021	+33,088	—103,122

Quantities of the same materials exported:

	Dec. 1925	Dec. 1926	Dec. 1927
Paper and Cardboard cwt...	434,970	299,281	332,772
Paper-making materials, tons	14,081	10,793	14,625

James D. Tew in Entire Charge of Goodrich Sales

James D. Tew, first vice-president of the B. F. Goodrich Rubber Co., Akron, O., has been placed in entire charge of all sales divisions of the company. Mr. Tew's title will be first vice-president and general sales manager.

Mr. Tew was born in Jamestown, N. Y., May 2, 1882. Soon after his graduation from Harvard with the degree of Bachelor of Science in Mining, he was employed in the Goodrich factory.

Although Mr. Tew has long been recognized as an expert on rubber manufacturing, he also has taken an interest in all divisions of the organization pertaining to sales, and in recent years has taken an active part on the selling and merchandising programs of the company. He is admitted to be a leading authority on every phase of the business from the production of tires and the thousands of other rubber products which Goodrich manufactures to its distribution and retail sales outlets.

WISCONSIN NEWS

John A. Kimberly

John A. Kimberly, whose name has been associated with the paper and pulp industry in Wisconsin for more than fifty years, and who was one of the founders of the Kimberly-Clark Co., Neenah, Wis., passed away at his home in Redlands, Cal., January 21. Interment was made in Neenah.

Mr. Kimberly, who was up to his death chairman of the board of directors of the Kimberly-Clark Co. and president of the Neenah Paper Co., Neenah, had reached the ripe age of ninety years. Although he had not been actively engaged in the management of the paper companies for some years, owing to failing health, he nevertheless took a keen interest in the affairs of the mills.

The parents of Mr. Kimberly were John Robbins Kimberly, a Troy, N. Y. manufacturer and merchant, and Aurelia Aldrich, Wrentham, Mass., who came to Neenah in 1847. After studying at Lawrence College in Appleton, the son entered the general merchandising business in Neenah with Havilish Babcock, and later became interested in various manufacturing industries, leading up to his partnership with C. B. Clark in starting a paper company under the original firm name of Kimberly, Clark and Co. in 1872. He was also intensely interested in civic and church affairs and distinguished himself for his philanthropy. The Neenah high school was named in his honor.

Surviving him are his widow, Mrs. Helen Cheney Kimberly, and seven children: John A. Kimberly, Jr., Oshkosh; Mrs. W. Z. Stuart, Neenah; James Cheney Kimberly, Neenah; Mrs. C. Edwin Bergstrom, Los Angeles; Mrs. Nathan Paine, Florida; Mrs. Clinton J. Curtis, Long Beach, Calif.; and Mrs. E. W. Shirk, Redlands, Calif. A sister, Mrs. Mary Kimberly Hamilton, Redlands, 97 years old, also survives him.

Foreman's Safety School

Opening sessions of the 1928 Foreman's Safety School in Green Bay and Appleton give indication of another successful course. At Green Bay more than 400 persons attended, and at Appleton the attendance was 315.

General as well as sectional meetings, in which the paper and pulp industry is included, are being held. Weekly sessions will be held until the latter part of March. At Appleton the speakers scheduled are A. S. McArthur, of the Kimberly-Clark Co., Neenah; J. H. Slater, paper mill man from Escanaba, Mich.; F. H. Rosebush, Nekoosa-Edwards Paper Co., Port Edwards; George Roller, Rhinelander Paper Co., Rhinelander; H. G. Boon, Kimberly-Clark Co.; H. N. Bergstrom, Bergstrom Paper Co., Neenah; M. G. Hoyman, Kimberly-Clark Co. The latter three will act as chairmen of the paper and pulp sectional meetings.

The forest conservation future in Wisconsin, in which the paper industry is especially interested, would be much improved if the proposed McNary-Woodruff bill passes in congress. If the appropriation carries, 100,000 acres of timber land in Forest and Oneida counties will be purchased by the government to be added to the forest reserves.

Increased production is being planned by the S. and S. Paper Products Co. of Cudahy, Wis., now that it has been successful in litigation which would have prevented the company from manufacturing a certain type of milk bottle cap. Suit was brought against it by the Sealright Caps, Inc., of Oswego Falls, N. Y. The United States Court of Appeals reversed a lower court decision.

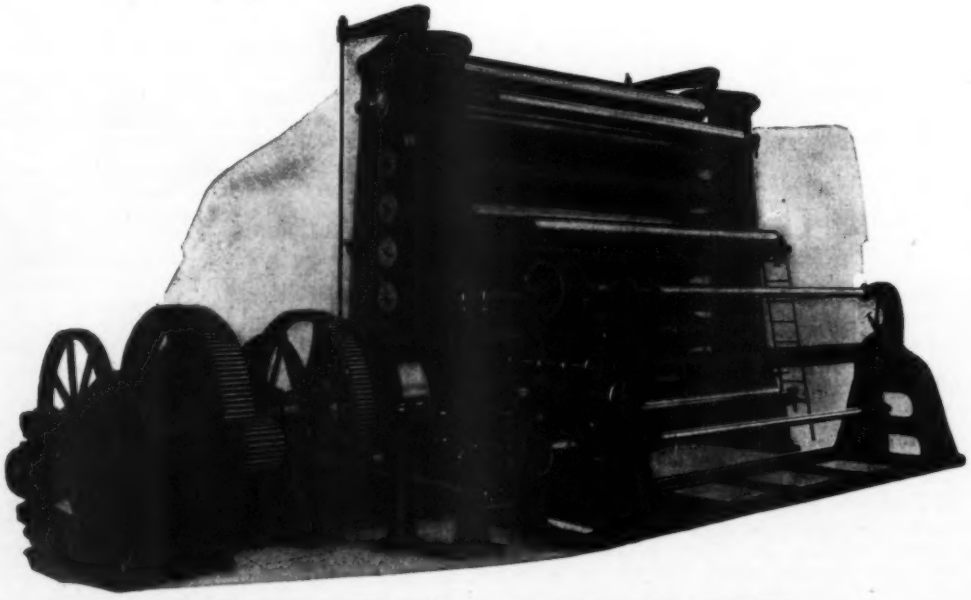
W. N. Cannard, superintendent of the Bay West Paper Co., Green Bay, was the intended victim of an extortion and a death threat recently. While he was depositing the money in a place specified by an anonymous writer, police lying in

HOLYOKE

SUPER CALENDERS *and* Experience

Experience does not come over night,—not in the designing and building of Super Calenders. It is the result of long years of intimate study of the daily dozens of difficulties to be overcome in the Paper Industry. For 65 years the HOLYOKE MACHINE COMPANY has built Quality and Superior Performance into every HOLYOKE MACHINE. When planning purchases of equipment consult with HOLYOKE Engineers, Holyoke Machine Co., Holyoke, Mass.

Manufacturers of Super Calenders, Platers, Cotton and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.



The HOLYOKE MACHINE COMPANY

FOUNDED 1863

ambush began to mistake each other for the extortioner, with the result that one of their number was severely wounded by gun shot.

W. E. Nash, sales manager of Nekoosa-Edwards Paper Co., Port Edwards, Wis., is considerably improved in health at this time. He was seriously injured several months ago in an automobile accident.

Safety Record Broken

A safety record of 284 consecutive days was interrupted by an accident to the head repairman of the power department of the Kimberly-Clark Co. at Niagara, Wis. He was burned on the body by escaping steam.

This mill of 600 employees had had a perfect record since Feb. 16, 1927, and was bent on completing a whole year without an accident. This is the biggest consecutive safety run ever made by any plant of the company. The closest mark was made by the mill at Niagara Falls which had a record of 209 days of 100 per cent safety.

Transfer of Arthur Redlin, superintendent of the Neenah, Wis., mill of the Kimberly-Clark Co., to the superintendency of the Atlas mill at Appleton was announced recently. The new superintendent at Neenah is George Wingrove, former tower boss of the Atlas plant.

Damages to the extent of $2,645 were awarded John A. and Veronica Banka in their suit against the Consolidated Water Power and Paper Co. of Wisconsin Rapids, for crop losses from floods which inundated their lands during the years of 1921 to 1926.

Improvements at Fort Howard Paper Co.

Fort Howard Paper Co. of Green Bay, has built a large new warehouse, for storage of pulp and raw materials as well as of paper stock. Previously a dock and slip had been built along the banks of the Fox River.

These projects are a part of an improvement program which also includes the erection of a new boiler house that will be completed about April 1st. The new concrete smokestack is 193 feet high. Modern boiler equipment will be used in the structure. With a fine dock in service, boats can now bring coal and pulp right to the mill.

H. G. Noyes, Appleton, co-ordinator for the State Department of Vocational Education, who organized the paper and pulp classes in the vocational schools of paper and pulp centers, will attend the annual convention of the Technical Association of the Pulp and Paper Industry in New York February 21-23. Each of the schools conducting these courses will contribute toward his expenses.

George W. Mead, the paper manufacturer mayor of Wisconsin Rapids, will seek another term in that office. Two years ago he was induced to run for the office by his employees and has had a very successful administration.

Nekoosa-Edwards Increases Capital Stock

A stock dividend of $3,000,000 was declared by the Nekoosa-Edwards Paper Company of Port Edwards, Wis., and the capital stock thereby increased to $6,000,000. This action was taken at the annual meeting of stockholders.

The present officers and directors were re-elected. They are: L. M. Alexander, president and treasurer; J. E. Alexander, vice president and general manager; J. G. Rosebush, vice president; C. A. Jasperson, secretary; F. J. Wood, G. O. Babcock, G. W. Kibby, J. B. Nash and L. M. Hanks, directors.

A. P. Mulroy, president, F. R. Goddard, vice president, and Mrs. Josephine Olson, secretary, were re-elected to their offices at the annual meeting of the Employees Mutual Benefit Society of the Nekoosa-Edwards Paper Co. of Port Edwards and Nekoosa, Wis. The association has a surplus of over $31,000 and reports show it has paid out in benefits a total of $70,000 in the last seven years. Officers of the paper company gave talks at the meeting.

A considerable amount of repair work is being done at the mill of the Neenah Paper Co., Neenah, Wis., by C. R. Meyer and Sons Co. of Oshkosh. Concrete is replacing wooden floors, and new foundation walls and piers are being constructed. Operation of the mill is going on unhindered.

An accident at the Hoberg Paper and Fibre Co. last month resulted in the death of an employee, Matt Hendricks. It was the first fatal accident in several years. Hendricks was crushed between rolls of a paper machine when his hand caught between the felt and the roll and he was pulled in partially before the machine could be stopped.

At the annual meeting of stockholders of the Nicolet Paper Co., of De Pere, Wis., the former directors were re-elected, as follows: President, W. C. King, Neenah; vice president and general manager, H. C. Hanke, De Pere; secretary, E. J. Dempsey, Oshkosh; treasurer, H. K. Babcock, Neenah, C. B. Clark, Neenah, R. S. Powell, Appleton, and Mowry Smith, Menasha.

Paper mills of Appleton, Combined Locks, and Neenah had employees enrolled in the first aid classes conducted recently by the Appleton Vocational School.

E. H. Murphy, of the Menasha Printing and Carton Co., who has been suffering from a case of ptomaine poisoning, is on the road to recovery. Three members of the family died from the effects of the poison.

The oldest employee of the Marinette and Menominee Paper Co. of Marinette, John Kramer, a man with a record of forty-three years of service, died last month.

Edmund Fitzgerald, newly associated with the Combined Locks Paper Co., whose offices are located at Appleton, Wis., has purchased the home of J. Leslie Sensenbrenner, who was transferred by the Kimberly-Clark Co. to its plant in Niagara Falls.

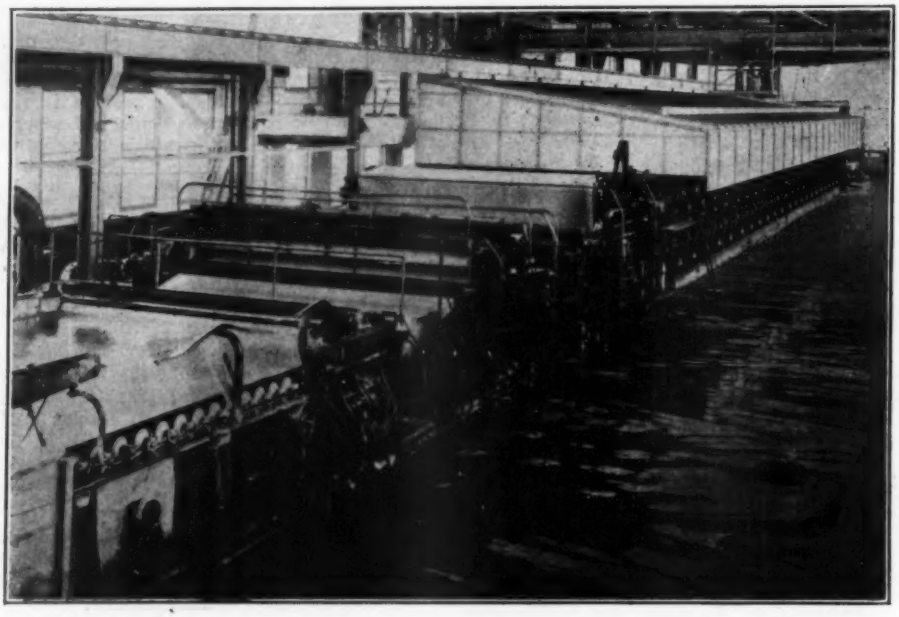
With the holiday slump past, nearly all paper mills in the Fox River Valley are back on a full time schedule of operations. Optimism over the market prospects for the new year prevails everywhere.

Movement of pulpwood to paper mills in Appleton and vicinity is becoming more pronounced. Over one hundred carloads of the raw material are being unloaded in Appleton daily, and the number will reach three hundred a day before long.

Reports that the Thilmany Pulp and Paper Co. has purchased the Kaukauna plant of the Union Bag and Paper Corp. are entirely unfounded. The rumors were denied by Karl Stansbury, vice president of Thilmany.

Three employees of the Falls Manufacturing Co. of Oconto Falls, Wis., were injured by a falling disc from a chain block. John Mount and Robert Damp suffered bone fractures, while John Mikesch was badly bruised.

Classes in paper and pulp manufacture conducted by Wisconsin vocational schools are now practically in full sway in most of the paper mill cities. The nineteenth course was recently started. Appleton will concentrate on this course after the completion of the Foreman's Safety School with which the Vocational School is co-operating.



Have YOU ever seen a better record?

Extract from a letter from
The Brompton Pulp & Paper Co., Limited
dated October 12th, 1927

"The Machine was purchased from Charles Walmsley & Company, on March 26th, 1926—and the construction of the buildings was commenced on May 1st, 1926. The first merchantable Newsprint was shipped from the Mill on January 28th, 1927—and the average daily production for the past eight months is as follows:—

February	53.6 Tons
March	87. Tons
April	97.4 Tons
May	99. Tons
June	101.7 Tons
July	104.6 Tons
August	107.8 Tons
September	106.4 Tons
and October up to date	108.6 Tons

We would point out that this Machine is operated entirely on 32# Standard Newsprint."—BROMPTON PULP & PAPER CO., Limited.

Charles Walmsley & Co.
(CANADA) LIMITED

Works
Longueil, Que.
Canada

Office
Montreal, Que.
Canada

Canadian News

Auspicious Beginning for 1928

The most hopeful indication in the newsprint industry in Canada at the opening of this year is the tendency towards co-operation in preventing the market from being over-supplied. There are no signs of an immediate improvement in the market itself, and the opinion is that the utmost caution will have to be exercised in 1928, particularly in the direction of keeping down costs, if the increasing production capacity is not to work a crisis for many mills, and, indeed, for the industry itself.

The wisdom of the various powerful mergers which have been brought about, together with the consolidation of interests in the selling end of the business, is becoming more and more apparent every day. But the fact remains that independent mills continue to come into production, complicating the situation with the necessity that confronts them of having a place in the sun. For instance, it would appear that, in view of the way in which production is being kept to about 80 per cent of capacity in the old established mills, there would be no room in the market for the products of the two big news mills which have just come into production in the Province of Quebec, namely, Anglo-Canadian at Quebec and St. John Power and Paper at Dolbeau. It is true that a large part of the output of these two units has already been contracted for; but this will mean releasing tonnage from some of the other mills.

Rise of Paper Industry in Newfoundland

For the first time in the history of Newfoundland, pulp and paper products equalled the total value of the fishing enterprises during the year just closed, the two industries producing approximately $13,500,000 each.

Increase in pulp and paper production was attributed to the fact that the Grand Falls mill, owned by the Rothermere interests of London, operated at capacity, and that the Corner-brook mill, recently acquired by International Paper from the Armstrong-Whitworth interests, operated at 98 per cent of its capacity.

Protect Forests Against Fire and Pests

Hon. Charles Stewart, Minister of the Interior at Ottawa, painted a bright picture of the forest industries in Canada in reviewing the situation during 1927. He stated that the net value of forest products in camps, mills and factories during the past year is estimated to be at least $475,000,000, that exports of forest products, exclusive of printed matter, were valued at $283,092,932, and that, with imports being valued at $34,221,276, there was a favorable trade balance in forest products of $248,871,656. He added that forest fires in 1927 were less than in any preceding year for which there are records, and that the forest continues to hold its place as the second great natural resource of Canada, agriculture occuping the premier position. In dealing with the forest situation generally, the Minister issues a warning that this resource should be conserved, that the supply of wood may not only be maintained, but augmented and improved.

Amendments to the Federal Destructive Insect and Pest Act are being drawn up for presentation at the present session of Parliament, which, it is hoped, will materially aid in protecting Canadian forests. The amendments will provide for inspection of nursery stock imported from the United States and for the prohibition of the importation of elms and conifers from Europe. Other minor changes may be incorporated. Prohibition of the importation of elms and conifers is thought desirable because these species are badly infected with destructive insects. Canadian forests already have suffered severely from depredations of insects: the larch saw fly in ten years destroyed upwards of 200 million cords of this useful wood, which, if manufactured in Canada, would have produced wealth in excess of $3,000,000,000.

General Manager E. A. Charlton, of the Newfoundland International Paper Co.'s large mill at Corner Brook, Newfoundland, recently assumed control of the activities at the mouth of the Humber River. Mr. Charlton was appointed to direct operations at Corner when International Paper acquired the properties from the Armstrong Whitworth interests last year.

I. P. Co. Concludes Newfoundland Deal

The International Power and Paper Co. of Newfoundland, Ltd., a subsidiary of International Power and Paper Co., acquired the property and assets of the Newfoundland Power and Paper Co., Ltd. at the end of January. The properties include the 400-ton newsprint mill at Cornerbrook, on the western coast of the island, a hydro-elecric power plant generating 98,000 h. p., and 2,802 square miles of timberlands in Newfoundland. Plans are now being laid to increase the capacity of the mill to 600 tons a day, in accord with the agreement entered upon with the Newfoundland Government. Various improvements in the conditions of the operatives, particularly at the mills, are under consideration, including a housing scheme and other civil advantages, with group insurance and the like for the workers. The government is also considering creating municipal machinery for this and similar communities.

The capitalization of the new corporation is understood to be approximately $4,866,000 first mortgage bonds, $9,733,000 of bonds guaranteed by the British Treasury, a like amount of bonds guaranteed by the Newfoundland Government, 10,-132,000 of preferred stock, and 500,000 shares of common stock of no par value.

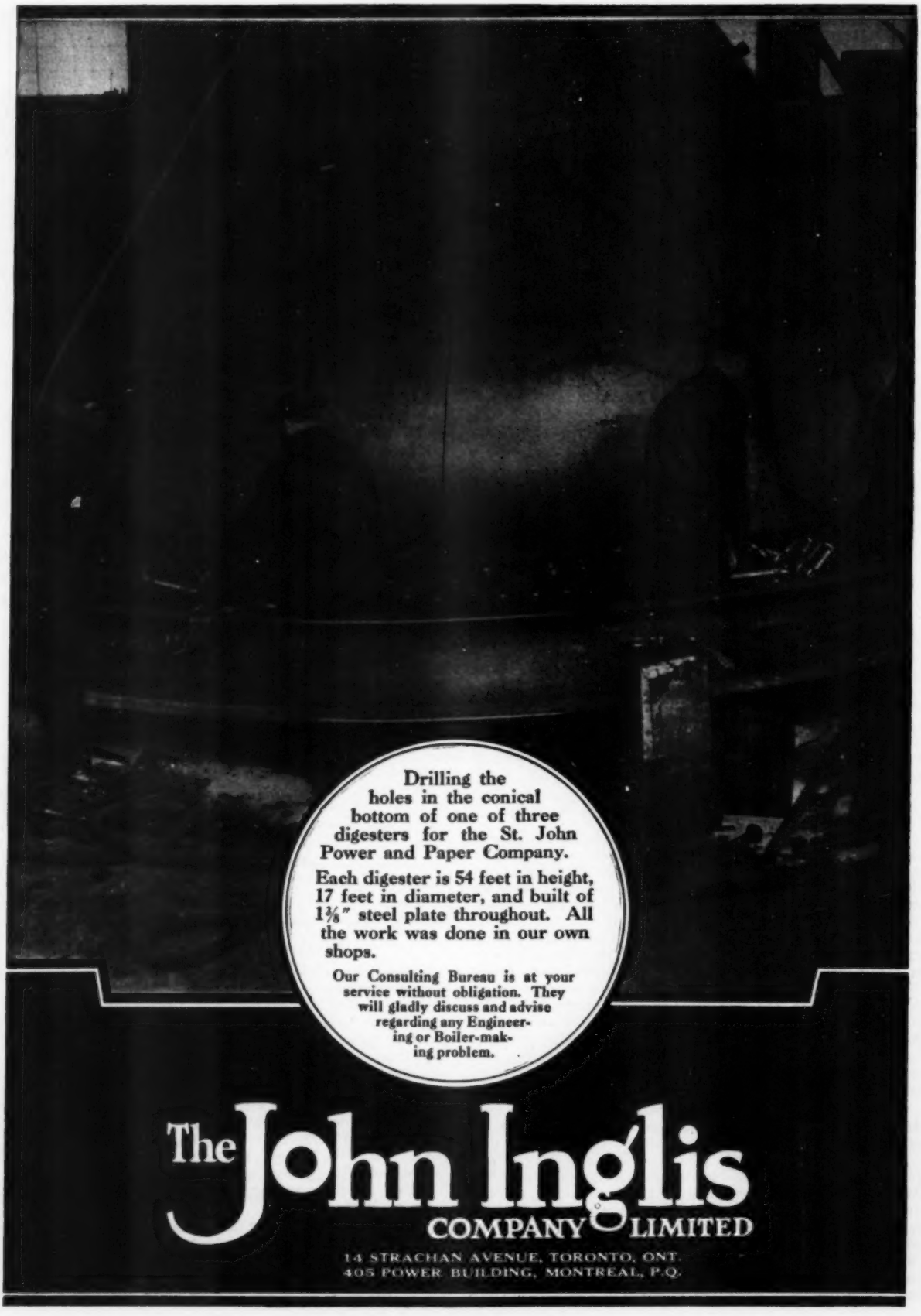
During December, 1927 Canadian newsprint mills, operating at 82.2 per cent of their rated capacity, produced 181,600 tons; while United States mills operating at 80.9 per cent of their rated capacity turned out 119,312 tons. Of the 3,789,-433 tons manufactured on the North American continent during 1927, Canadian mills made 2,086,852 tons and United States mills 1,485,495 tons.

QUEBEC

Another Newsprint Merger

Another big stride in the consolidation of the Canadian newsprint industry was consummated last month when St. Maurice Valley Corporation and Laurentide Co. directors agreed upon terms which will bring these two large producers together under a new holding company, the Canada Power and Paper Corporation. Geo. Chahoon, Jr., president of Laurentide, will remain an active administrative head in the industry in which he has played such a prominent part for many years. He will be associated in the management of the new company with Geo. M. McKee, vice-president and managing director of St. Maurice Valley Corp. and president of Port Alfred Pulp and Paper Corp., whose success in the industry before and since joining St. Maurice Valley has been marked. The new company will be a Quebec corporation, with head office at Montreal.

This amalgamation will bring under unified control the operations of the St. Maurice Valley Corp. mills at Shawinigan Falls, Three-Rivers and Windsor Mills, which have a combined capacity of about 1,000 tons per day, and of Laurentide Co. at Grand'Mère, which produce some 400 tons a day, or



Drilling the holes in the conical bottom of one of three digesters for the St. John Power and Paper Company.

Each digester is 54 feet in height, 17 feet in diameter, and built of 1⅜" steel plate throughout. All the work was done in our own shops.

Our Consulting Bureau is at your service without obligation. They will gladly discuss and advise regarding any Engineering or Boiler-making problem.

The John Inglis COMPANY LIMITED

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a total of 1,400 tons. The bringing together of three large mills situated in close proximity in the valley of the St. Maurice River, with contiguous limits which are peculiarly adapted to efficient and economical operation under one control, is expected to produce substantial economies.

The pulpwood resources available for the operations of all these properties, including the limits in the Ottawa River Valley recently acquired by the Laurentide-Ottawa Co., a wholly-owned subsidiary of Laurentide Co., are estimated to be sufficient to provide for all present requirements and also for future expansion as conditions may warrant. Through Laurentide Co., the new company will control Laurentide Power Co., with an installed capacity of 165,000 horse-power hydro-electric energy at Grand'Mère.

The directors of both companies strongly recommend the shareholders of their respective organizations to accept the

Price Bros. Will Absorb Donnacona

Following closely upon the purchase by Royal Securities Corporation of control of the Donnacona Paper Co., Ltd., it has been announced that a new company of the same name is to be incorporated under Quebec laws to take over the properties. Price Bros. and associates will own a controlling interest in the common shares of the new company, Royal Securities retaining a substantial interest in the property.

The new company will own in fee or through Quebec provincial lease practically all the timber on the watershed of the Jacques Cartier River, estimated to contain about 4,000,000 cords of pulpwood, directly tributary through short drive to the company's mill at Donnacona. In addition, it will control cutting rights on approximately 64,000 acres of seigneurial lands on the Du Gouffre River, 60 miles east of Quebec, together with 67.5 square miles of leasehold lands on the same watershed, together estimated to contain about 400,000 cords. On the Sault au Mouton River, tributary to the St. Lawrence, just east of the Saguenay, the company will control 204 square miles of leasehold timber lands, estimated to contain a further 1,000,000 cords. Thus the company will own and control a total of approximately 5,400,000 cords, the major portion of which is located on the Jacques Cartier and the balance being available for delivery by direct water shipment to the company's wharf at its mill.

Located as it is directly on the St. Lawrence, the Donnacona mill will be able, as required, to draw upon the large additional pulpwood reserve represented by Price Bros.' extensive limits on the south shore of the St. Lawrence, and which at present are operated only in conjunction with the latter company's saw mill in that territory.

J. H. Price, president of Price Bros., will be president of the new company, and J. L. Apedaile, W. G. Mitchell, R. H. Nisbet and Arthur C. Price, all officials of Price Bros., will be directors.

Present expectations are that the Cellulose Institute being erected by the Canadian Pulp and Paper Ass'n. on the McGill University campus, Montreal, will be opened for use not later than April. In addition to providing facilities for research bearing on the problems of the pulp and paper industry, the building will supply accommodation for the headquarters of the association.

Diamond Wedding in Crabtree Family

Mr. and Mrs. Edwin Crabtree, of Montreal West, ushered in the New Year by celebrating their diamond wedding, when diamond presentations were made to each by their family.

On coming to Canada in 1892, Mr. Crabtree assumed the management of the Alexander McArthur Co., in which position he remained for 15 years. During his term with the McArthur Co., in 1901, Mr. Crabtree with his son took over the Adams Paper Co. at Wells River, Vt., and later founded the firm of Edwin Crabtree and Sons, at Crabtree Mills, Que. The plant of this firm was subsequently taken over by the Howard Smith Paper Mills.

Seven of Mr. Crabtree's nine sons are still living, and six of them are connected with the paper industry: Herbert Crabtree is president and general manager, David Crabtree vice-president and Walter Crabtree on the staff of the Adams Paper Co.; Ed. S. Crabtree is connected with the Bathurst Co.; Harold Crabtree is managing director of Howard Smith Paper, and K. Crabtree is mill manager of the Crabtree Division of Howard Smith Paper Mills.

Brompton Sells 10,000 New Shares

During the past year, in addition to completing the newsprint mill at Bromptonville, considerable extensions and improvements were caried out by the Brompton Pulp and Paper Co. at its East Angus mill. These improvements have given very satisfactory results, which should be reflected in the company's future earnings. In view of the very large capital outlays which had been made out of earnings in the past few years, the directors considered it advisable to provide for these more recent capital expenditures by making a small additional issue of stock, and they arranged for the disposal of 10,000 treasury shares at a very satisfactory price.

For some years past the plant of the Groveton Paper Co., at Groveton, N. H., was the only department of the Brompton Pulp and Paper Co. which was not showing a profit, and during the past year it was sold at a price which was considered satisfactory. This will not only improve Brompton's liquid position, but will also make an improvement in earnings.

R. B. Bennett, leader of the Conservative party and controlling shareholder of the E. B. Eddy Co., of Hull, recently announced that there have been a number of offers for the Eddy properties, but no sale is contemplated for the time being. It is stated that no less than six pulp and paper companies in Canada have made offers to the Eddy Co. for its pulp and paper mills and extensive timber limits.

Neil Ferry, who was for some time assistant superintendent of the sulphite mill of the Union Bag and Paper Corp., at Fenimore, N. Y., which was closed by the company recently, has accepted a similar position with the St. John Power and Paper Co., at Dolbeau. Mr. Ferry assumed his new duties on January 3rd.

Through the courtesy of Anglo-Canadian Pulp and Paper Mills, Ltd., whose new mill recently started up in Quebec City, the first newsprint ever manufactured in Quebec City was offered as a New Year gift to local newspapers to print their first issue of the year.

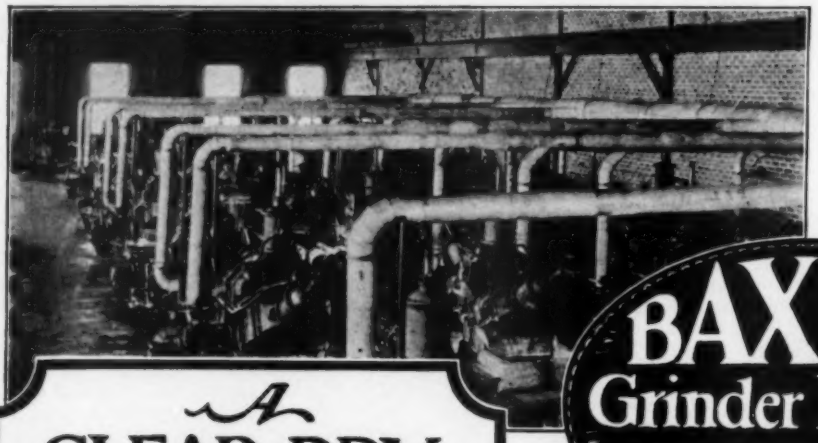
The School of Papermaking at Three-Rivers is considering the possibility of establishing a system of apprenticeship for its students, with the co-operation of the mills in the vicinity, whereby the latter might be able to assign certain laborers' jobs in the various departments to employed students who would be classed as apprentices and rotated from one job to another, thus giving the students an opportunity to observe the operations in these departments while carrying on their studies.

ONTARIO

Abitibi News

Alexander Smith, president of Abitibi Power and Paper Co., recently announced that the plan for this company's acquisition of the common capital stocks of Spanish River Pulp and Paper Mills, Fort William Power Co., Manitoba Paper Co., Ste. Anne Paper Co. and Murray Bay Paper Co. has been declared effective. Ninety-seven per cent of the aggregate shares of these companies has been deposited under the plan. L. R. Wilson will remain as managing director of the enlarged company and no change in the personnel of the different organizations is contemplated.

The annual report of the Iroquois Falls mill of the Abitibi



A CLEAR DRY GRINDER ROOM

BAXTER Grinder Exhaust SYSTEM

An interesting illustrated booklet explaining operation of the Baxter System is being prepared. Write for copy.

Executives of mills that have installed the Baxter Exhaust System are enthusiastic about its performance. On the Pacific Coast—throughout the East—in the United States and in Canada—the thick, troublesome fog in grinder rooms is being completely eliminated, atmosphere cleared, working conditions tremendously improved. A number of prominent mills are operating the Baxter Exhaust System in conjunction with the Briner Economizer. These mills not only eliminate the waste vapor but in addition utilize it for heating purposes—thus greatly reducing their steam costs.

The Baxter Exhaust System bids fair to become standard grinder room equipment within a very short time. Investigate its advantages now. Write for particulars.

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ROSS SYSTEMS
HEATING—VENTILATING—DRYING

Power and Paper Co. shows a reduction in the number of accidents and time and wages lost over the previous year. Reports for the past two years also show that the old employee is more frequently injured than the new one. A man who grows accustomed to the mill and its machinery oftentimes becomes over-confident and takes chances.

At a recent meeting of Federal, Ontario and Manitoba officials, it was decided to proceed with the construction of a storage dam for water power developments at Lac Seul on the English River, near Sioux Lookout, where the development of a total of 250,000 horse power is possible. Ontario will retain complete ownership of the dam, which will be on the Ontario side of the Ontario-Manitoba boundary, but operating control will be turned over to a control board similar to that operating the Lake of the Woods Norman dam. The power will be available for pulp and paper developments in Northwestern Ontario.

In a judgment recently handed down at Toronto, Justice Grant dismissed the action of the Fort Frances Pulp and Paper Co. against the Spanish River Pulp and Paper Mills and twelve other pulp and paper companies, for their alleged delinquency in supplying newsprint to Canadian publishers under the rules laid down in a measure passed under the War Measures Act, and which resulted in the plaintiff company being forced to supply more than their share of newsprint to Canadian publishers at a set price. The action concerned the supplying of paper in the period from January 1, 1918 to December 31, 1919.

Fire which broke out early in the morning of January 2, completely destroyed the 10-ton corrugating-board mill of the Hastings Paper Mills, near Belleville, resulting in a loss of $100,000, partially covered by insurance. An overheated pulley is thought to have caused the fire. It is understood that the mill will probably be rebuilt; meanwhile, thirty employees have been thrown out of work.

Sir Charles Gordon, of Montreal, who is a director of Provincial Paper, Ltd., Toronto, has been elected president of the Bank of Montreal.

Dominion Boxboard, Ltd., Incorporate

Dominion Boxboard, Ltd., Toronto, has been incorporated to manufacture and deal in paper, paper materials and paper substitutes of all kinds; box board, card board and other preparations, products and manufactures of paper and pulp; to manufacture and deal in wood and lumber, and to manufacture the same into boxes, cartons, cases, barrels.

This company is a subsidiary of Dominion Envelope and Cartons, Ltd., which is at present erecting a mill in Toronto. Construction of the main building of the latter is now complete, the bed plates of the paper machine are in place, and installation of the beaters, jordans, motors, etc., is proceeding rapidly. A great deal of work has also been done on the engine room and boiler room, and these two buildings are expected to be ready by the end of the present month. A. Garrison has been made superintendent of the new plant.

Construction of the paper mill of the Great Lakes Paper Co., at Fort William, is being pushed as rapidly as possible. The first machine, which will have a rated capacity of about 160 tons of newsprint a day, is expected to start about the 1st of June; while the second machine, the 304-inch monster now being constructed by Bagley and Sewall, which will have a rated capacity of 200 tons per day, is scheduled to come into production on January 1st, 1929.

If Howard Smith Paper Mills for the fiscal year just concluded makes deductions from its income account for depreciation and other charges in line with those of last year, it is understood that the earnings on the common during 1927 will amount to $9 a share, which figure on the common stock has not been exceeded during the past five years.

BRITISH COLUMBIA

Outlook for the Industry

The year 1928 finds the pulp and paper industry in British Columbia in line for higher production than previous years, a larger capital investment in its mills, and expansion and developments under way that will no doubt place the province in the front ranks among paper producing countries.

It is yet problematical just what the actual output of the British Columbia mills has been during the past year, as all estimates are preliminary and are based more upon the known capacity of the plants rather than upon the volume of material manufactured. It seems safe, however, to predict that both in newsprint and in woodpulp the province will show a gain. The anticipated advance will be largely due to the doubling of capacity at the Powell River Company's mills which now produce upwards of 400 tons of newsprint per day, continued large scale operation at Pacific Mills, Ltd., and the rapidly increasing production of B. C. Pulp & Paper Company which has been making rapid strides in the manufacture and marketing of sulphite pulp since it took over the old Whalen properties.

Australian Treaty a Big Factor—Undoubtedly the Australian treaty has been a big factor in the newsprint situation on the coast. The Powell River Co. and Pacific Mills have taken advantage of the situation, and their exports to the commonwealth have grown materially since the preferential tariff became effective. The promise of greatly increased business with Australia was one of the chief reasons for the doubling of capacity at Powell River, and this is now materializing. However, the mills in British Columbia have learned their lesson, and instead of putting all their eggs in one basket, they are going far afield to sell their product. The mills are all on the tidewater, affording access to cheap water haul, and during recent months very promising trade has been developed with the Orient, South Africa, Central America, South America and Cuba. On this continent, British Columbia mills are selling extensively as far south as Texas, and recently have managed to break into the highly competitive field of the Atlantic seaboard in the sale of sulphite pulp.

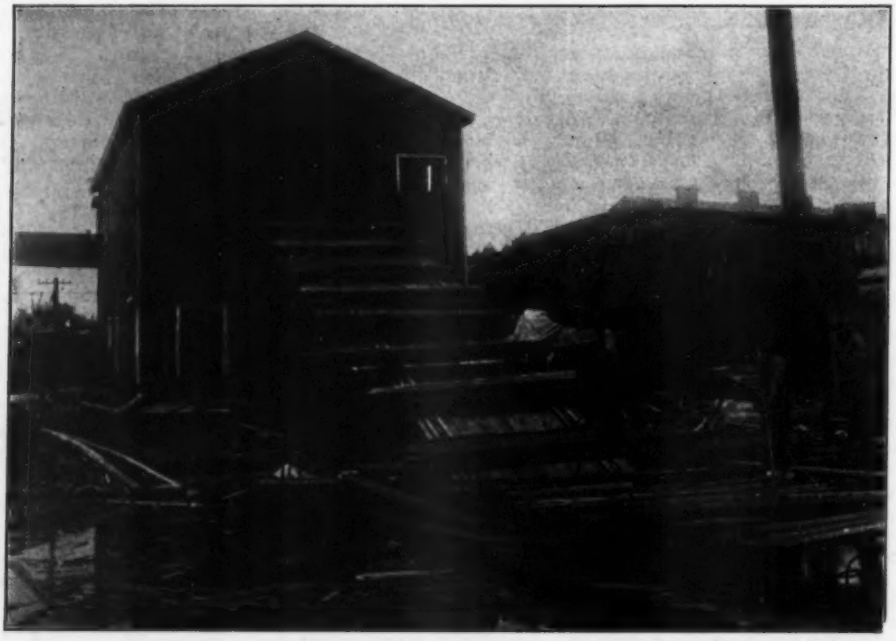
U. S. Capital in the Industry—One of the features of the investment situation in British Columbia pulp and paper industry is the growing interest of United States capital. There is a total investment at present of about $42,000,000 in mills and equipment, which amounts to an approximate interest during the past year of $6,000,000. Most of the large producing companies and several already in existence but not on an operating basis, have been reorganized during the past two years, principally with a view of putting them on a stronger financial foundation. This year finds all of them on a sound footing.

Development in Northern Vancouver—In the Nimpkish River section of Northern Vancouver, for several years the scene of extensive logging, plans are proceeding for the renovation and enlargement of the mills of the Beaver Cove Lumber, Pulp and Paper Co., which has been acquired by the International Harvester interests at an estimated price of $6,000,000. The company has been reorganized under the name of Canadian Forest Products, Ltd. The pioneers of the Beaver Cove project were White Bros. of Boyne City, Mich., who, before and after the war, spent several millions of dollars on development. Almost as soon as the mills began operation they were closed, but with the present assurance of sufficient capital, there will be no obstacle to large-scale operation. The International Harvester Co. is said to have conducted a survey during the past few months to ascertain the extent of the waterpower available, and this company's present plans are reported to call for an expenditure of $16,000,000. This company, headed by Cyrus McCormick, Jr., of Chicago, already controls 3,000,000,000 feet of pulpwood, most of which was acquired some twenty years ago by the White Brothers.

Many Important Expansion Programs—Although the Vancouver Kraft Mills, Port Mellon, Howe Sound, is now operat-

RYTHER AND PRINGLE COMPANY CARTHAGE N.Y.

RYTHER LOG HAULS



RYTHER LOG HAULS are constructed to carry any length of logs. The construction can be of timbers or structural steel. The machine parts are extra heavy and designed for maximum capacities. The standard design is flexible and can be combined to meet all river and ice conditions.

FOR CANADA REFER

CANADIAN INGERSOLL-RAND COMPANY, LIMITED

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ing on a comparatively small scale, the recent purchase of a controlling interest by F. W. Leadbetter, an American pulp and paper magnate, indicates that big things may be expected. It is now planned to use waterpower instead of steam, and it is announced that in the near future an average output of 200 tons per day will be maintained.

The revival of the British Columbia Pulp & Paper Co., under the direction of Lawrence W. Killam is one of the bright spots of the pulp situation on the coast. Since the post-war period disrupted the world's trade channels, the Whalen Pulp and Paper Mills stumbled along with indifferent success and several reorganizations were effected without strengthening the financial and market position of the company to any great extent. Early in 1926 the assets of the Whalen company were taken over by the new concern, known as British Columbia Pulp & Paper Co. The bondholders, acting through the Montreal Trust Co., bought the assets and undertakings for $4,000,000. Under the reorganization plan it was made possible for them to retain an interest in the property by purchasing securities of the new company. The new first mortgage bonds were issued in exchange for the Whalen first mortgage bonds, par to par. The preferred stock was distributed to the Whalen bondholders on a basis of $150 of preferred stock with each $1,000 bond, representing interest accrued and paid up to November, 1925. The British Columbia Pulp & Paper Co. is operating only two of its three plants, Woodfibre and Port Alice. The Swanson Bay plant is idle. This company has built up a splendid reputation for its sulphite pulp and is able to command top prices in the most closely competitive field.

The Powell River Co., Powell River, B. C., now ranks among the first concerns of its kind in the Dominion. Up to four years ago, the investment in this company's mills was approximately $12,000,000. An expansion program during 1926, followed with further improvements last year, resulted in the investment of about $8,000,000 more and increased the capacity from 260 tons to more than 475 tons daily. Among the units recently completed are a sawmill which cost $1,200,000; additions to the boiler house costing $900,000; hydraulic development, $675,000; generating plant, $325,000; grinder room, $720,000; sulphite and acid plant, $570,000; wharf and tramways, $300,000; machine shop, $30,000; miscellaneous mill improvements, $80,000; townsite $500,000. The mill consumed 10,000,000 feet of logs monthly. Most of the capital is American; the Brooks-Scanlon interests being behind the company. Dr. D. F. Brooks, Minneapolis, is president; M. J. Scanlon, secretary and A. E. McMaster, general manager.

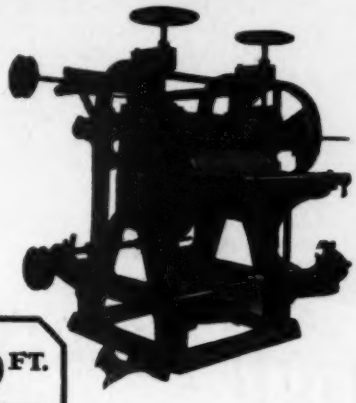
$30,000,000 Deal May Materialize—If negotiations which have been in progress for several years materialize, one of the largest pulp and paper mills in Western Canada may be located near Prince George, Central British Columbia. It is planned to utilize the tremendous horse power available at the Isle de Pierre Falls on the Nechako River. One of the prime movers in the venture is Frank P. Jones, until recently president of Canada Cement.

Steady Progress Expected—The pulp and paper industry in British Columbia is still going through the pioneer stage, but it is now on a firm foundation and steady progress may be expected. British Columbia has the countries of the vast Pacific area as its natural market, and with steadying of political and economic conditions, these will provide an ever-increasing demand. The Panama Canal also makes it possible for British Columbia pulp to find its way into markets that would otherwise be denied it, and those who look ahead visualize a time when pulp and paper from this province will be almost as keen a competitor of the Eastern product as British Columbia Douglas fir and other lumber is of Ontario and Middle Western sawmill stocks. Two natural advantages in addition to geographical location are the availability of abundant water power and the thicker stands of pulpwood to be found in the coast forests.

Developments Delayed by Over-Capacity

In the opinion of officials of the Department of Lands, who have investigated the present world paper situation,

Embossing
SPECIALTY
BOX PAPER



150 FT. TO 250 FT. PER minute

OPEN FRONT
WALDRON EMBOSSER
WITH HIGH SPEED BEARINGS

Every specialty box paper manufacturer requiring frequent change of engraved designs for small runs can effect substantial savings from the operation of this Waldron embosser. The 1 to 2 ratio between steel and paper rolls holds down engraving cost while tripling the speed over that of the plain bearing machine greatly lowers production cost. Write us for specifications and equipment data.

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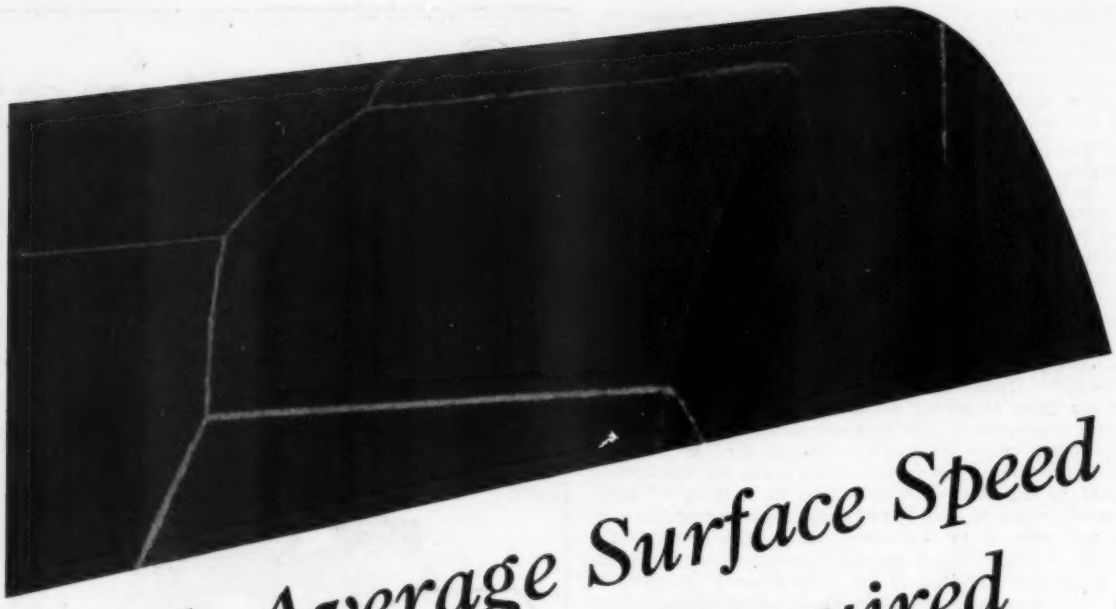
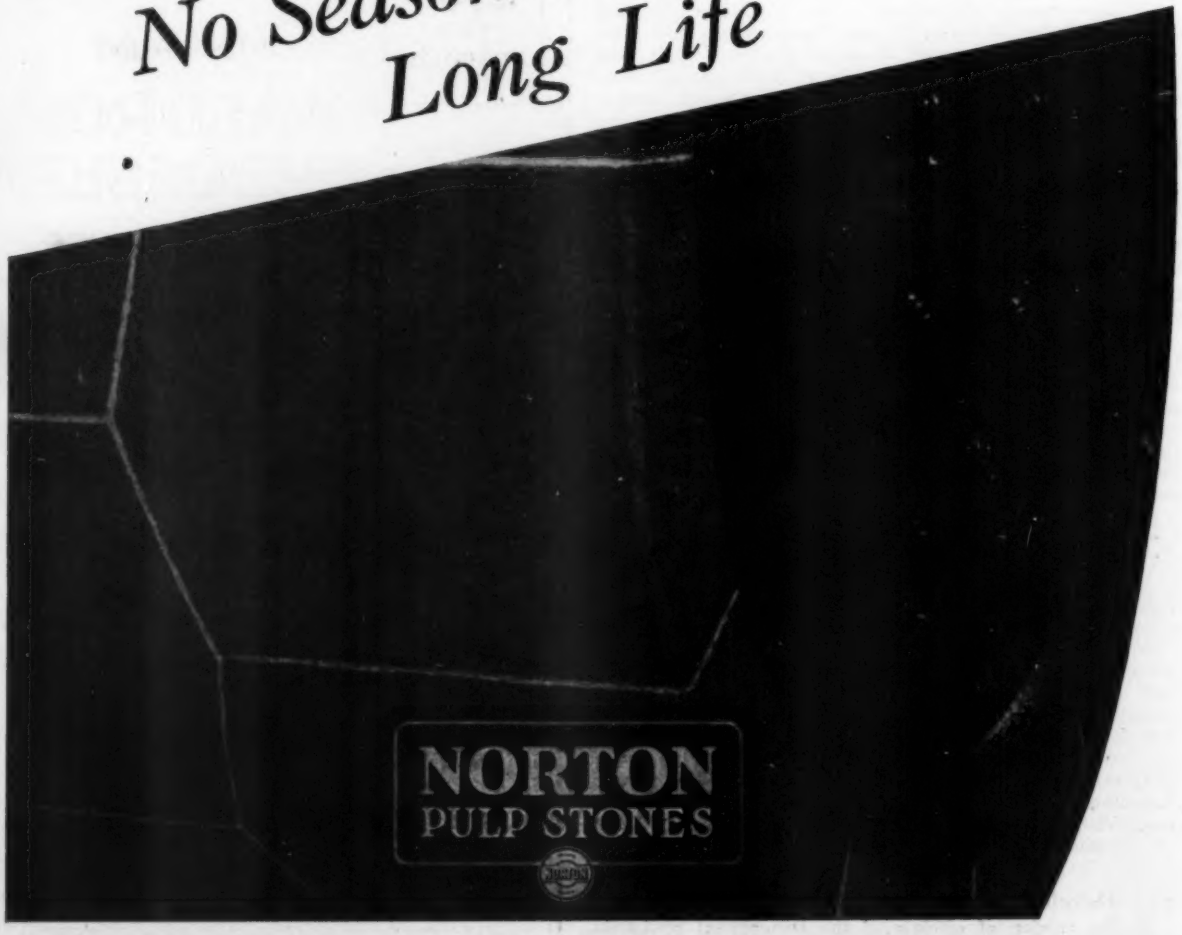


High Average Surface Speed
No Seasoning Required
Long Life



NORTON COMPANY, WORCESTER, MASS., Norton Company of Canada, Ltd., Hamilton, Ontario

the present world surplus production of pulp and paper will have the effect of deterring devolopment of British Columbia's timber areas for the time being, but not for long. Financing of large-scale pulp and paper projects at this time is made difficult by the fact that the capacity of present mills is greater than the demand; and it is thought that this situation is probably responsible for the delay in the large Prince George pulp and paper manufacturing scheme which is backed by a powerful syndicate of eastern Canadian capitalists.

This condition, however, is considered to be only temporary, and it is thought that the growing appetite of the world for paper will soon bring the demand abreast of the supply and again stimulate interest in British Columbia's pulpwood resources.

NEW BRUNSWICK

Further Expansion by Fraser Companies

Archibald Fraser, president of Fraser Companies, Ltd., has announced the firm's intention to erect a groundwood mill at Edmundston during the present year, and he further stated that paper board will be manufactured in the Edmundston mill before the close of the present year. The plans involve the expenditure of $2,000,000, and the power for the new developments will be obtained from the Grand Falls power development on the St. John River. An enlargement of the present sulphite mill at Edmundston which now has a capacity of 160 tons a day, is already under way, and it will be increased to 260 tons. The new groundwood mill will have a capacity of 150 tons, and the paper board mill a capacity of 60 tons daily.

The third fine paper machine being installed in the company's mill at Madawaska, Me., is practically ready to start up, thereby increasing the capacity of that mill by 70 tons a day. A fourth machine, which will be run on lightweight fine sulphite papers and which will add approximately 30 tons a day to the mill's production, is expected to be in operation by March 15.

One of the unusual phases of the sale of the Bathhurst Co. to Nesbitt Thomson and Co., of Montreal, is that the management of the firm is unaffected by the change. This means that Angus McLean will continue as president and general manager, A. E. McLean as vice-president, and G. A. Schryer as treasurer.

Persons connected with the pulp and paper industry are reported as active in a movement to provide a separate forestry building at Fredericton for the University of New Brunswick. The need of such a structure has been imperative for several years owing to congestion. At present the forestry department of the college is domiciled in the university building.

MANITOBA

To Survey Manitoba Pulpwood Resources

Hon. Charles Stewart, Minister of the Interior at Ottawa, has announced that his department will carry out this year a complete survey of all pulpwood in Manitoba. This will be done before any measures are taken to increase the pulpwood holdings of the Manitoba Paper Co. It will involve cruises of the Nelson and Saskatchewan River berths, as well as the Lake Winnipegosis area.

Mr. Stewart stated that the Manitoba Paper Co. had asked the department to increase its pulpwood holdings to 6,000,000 cords. The berth which the company now owns contains only 3,000,000 cords, according to Federal Government cruisers. There is, therefore, a shortage of 3,000,000 cords to be made good. The Manitoba Paper Co. is very eager to invade the Nelson River and Saskatchewan River berths, but Mr.

Saving:

30c in material

½ hour in time

on every felt washed!

ANOTHER example of the economies to be obtained in cleaning felts with Oakite!

In this mill the saving in time results from the easier rinsing properties of Oakite. The economy in material is due to its greater cleaning power. Five pounds of Oakite now do the work of 15 pounds of the material formerly used, and a 30 minute rinse has replaced the full hour previously necessary. Such economies count. Multiplied by the number of felts washed in the course of a year, they amount to a worthwhile reduction in cleaning costs, as well as a substantial increase in productive time.

To make sure you are not overlooking similar possibilities in your cleaning, consult our Service Man. A card to us brings him.

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Oakite Service Men, cleaning specialists, are located at

Albany, N. Y., Allentown, Pa., Altoona, Pa., *Atlanta, Baltimore, *Birmingham, Ala., *Boston, Bridgeport, *Brooklyn, Buffalo, *Camden, N. J., Charlotte, N. C., Chattanooga Tenn., *Chicago, *Cincinnati, *Cleveland, *Columbus, O., *Dallas, *Davenport, *Dayton, O., Decatur, Ill., *Denver, *Des Moines, *Detroit, Erie, Pa., Flint, Mich., Fresno, Cal., *Grand Rapids, Mich., Greenville, S. C., Harrisburg, Pa., Hartford, *Houston, Tex., *Indianapolis, *Jacksonville, Fla., *Kansas City *Los Angeles, Louisville, Ky., *Memphis, Tenn., *Milwaukee, *Minneapolis, *Moline, Ill., *Montreal, Newark, N. J., Newburgh, N. Y., New Haven, *New York, *Oakland, Cal., Omaha, Neb., *Philadelphia, *Pittsburgh, Portland, Me., *Portland, Ore., Providence, Reading, Pa., *Rochester, N. Y., Rockford, Ill., *Rock Island, *San Francisco, *Seattle, *St. Louis, *St. Paul, South Bend, Ind., Syracuse, N. Y., *Toledo, *Toronto, Trenton, *Tulsa, Okla., Utica, N. Y., *Vancouver, B. C., Williamsport, Pa., Worcester, Mass.

*Stocks of Oakite materials are carried in these cities.

OAKITE

TRADE MARK REG. U.S. PAT. OFF.

Industrial Cleaning Materials and Methods

REED SPAFFORD

Pulp Screen

WHAT DOES YOUR **POWER** COST YOU

UNHEARD OF LOW **POWER** PER TON

HALF **POWER** SAVED

VERY LARGE CAPACITY

VERY LIMITED FLOOR SPACE

OFFERED ONLY AFTER MANY MONTHS OF CAREFUL DEVELOPMENT

Improved Paper Machinery Company

Nashua, N. H., U. S. A.

Stewart has informed them that he will not permit these berths to be spoiled for separate development, except as a last resort. Very little actual information is available about either of these berths, and until Mr. Stewart knows the real situation in regard to the whole province he is not willing to make a decision.

Great West Paper Mill Near Completion

According to present plans, the plant of the Great West Paper Mills at St. Boniface, a suburb of Winnipeg, will be in operation within three months. M. R. Ware, of Baltimore, engineer in charge of the project, will be managing director and superintendent.

The plant, when in operation, will be valued at $300,000, and will operate one machine with a 25-ton daily capacity. Waste paper from city offices will be used for the manufacture of box board and building paper, and as the business grows a second unit of the same or larger capacity will be added. Some pulp will also be used to give greater strength to the product.

SOUTHERN NEWS

The Paper Industry

Conditions in the paper industry have been rather quiet, but this is only a temporary condition. Paper mill officials have expressed an optimistic outlook for 1928.

There has been some suggestion of a paper mill in the Gulf Coast section of Mississippi between Gulfport and Perkinston. This is in the pine section along the G. and S. I. Workers, water and wood are three things essential to the operation of a paper mill. The district is fairly well supplied with these, but more wood is desirable. A Gulfport item states that observation towers from which can be viewed 350,000 acres of pine land will be finished within the next twelve months. Two eight-foot towers and one one hundred-foot tower have already been built and fire fighting apparatus is on hand.

Lord Rothermere Visits Southern Cities

Lord Harold Sidney Rothermere, publisher of the London Daily Mail and other newspapers in England, and extensively interested in Canadian paper mills, recently visited many southern points, including Havana, New Orleans, Memphis and Houston, Tex.

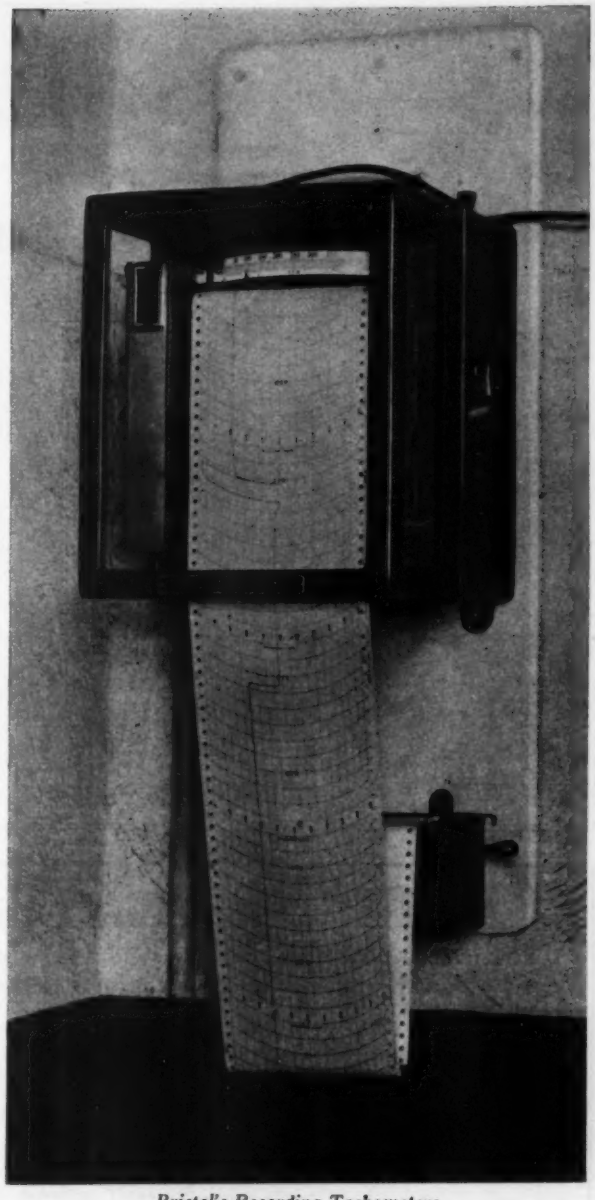
Lord Rothermere was touring the States to make a study of industrial conditions. He was accompanied by a number of English associates, including Frank W. Clarke, vice-president of the Anglo-Canadian Pulp and Paper Mills, Quebec.

Many interesting events are being presented to the legislature at Jackson, Miss. The Magnolia State is another of the southern states that has made some progress in paper and pulp mills, and with vast timber resources promises other developments in the future.

Champion Fibre to Enlarge Power Plant

The Champion Fibre Co., Canton, N. C. advises that it will enlarge its boiler house for a Heine type VX boiler with water walls and water screens. This boiler will be capable of generating 300,000 pounds of steam per hour at 450 pounds pressure and a total temperature of 700 degrees F. Pulverized coal will be used, and the improvements will include three Raymond impact unit type pulverizers. Steam from this unit will drive a 4000 kw. Westinghouse high back pressure, non-condensing turbine.

American blower fans, Cameron boiler feed pumps and Terry Steam turbines will be employed. The boiler will be furnished and installed by the Combustion Engineering Corp., New York City, and the designing and building of the station will be handled by Champion Co.'s construction and engineering department. If this unit comes up to expectations, a second unit will be installed.



Bristol's Recording Tachometers at Orono Paper Co.

BRISTOL'S

Recording Tachometers

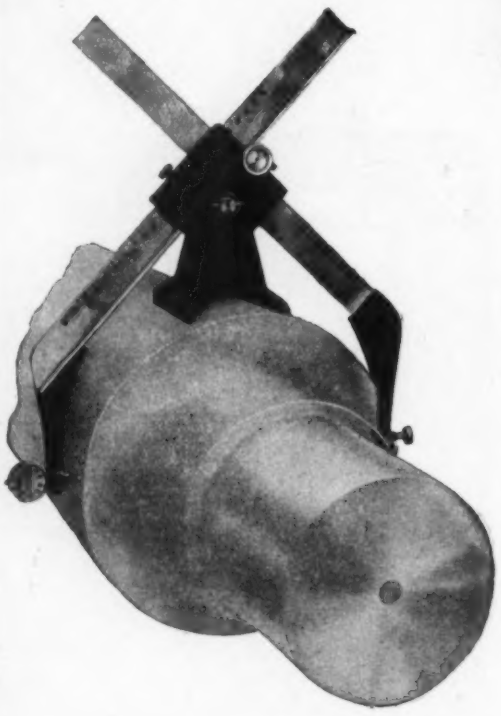
Give detailed account of each "run"

Note how clearly the record line tells the story of paper machine operation. Such records prove decidedly valuable to the paper mill management—for example in deciding the justness of customer complaints regarding non-conformity with specifications on any order. Such complaints can be easily and promptly adjusted by reference to the Tachometer charts covering that particular paper run; a close and reliable check being afforded as to weight, tensile strength, absorption qualities, etc., of the paper.

Write for complete information.

The Bristol Company

Waterbury, Conn.



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IMPROVED
MICROMETER ROLL CALIPER

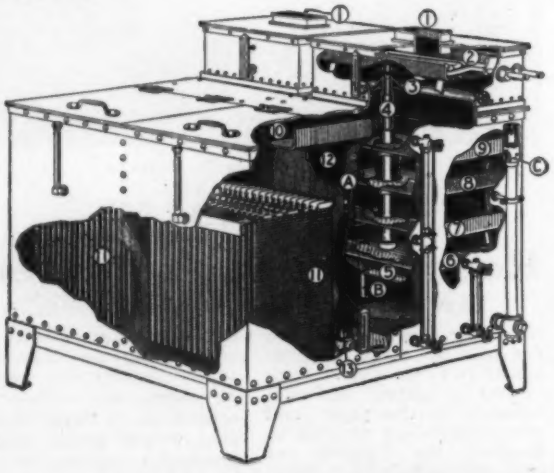
Is indispensable to the mill equipped to regrind its own rolls and is equally useful in every mill in keeping an accurate check on the condition of the calender and press rolls.

Light Weight
Easily Adjusted
Extremely Accurate

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE

OIL: The thing every bearing *must have!*

Bearings must have clean, cool oil, *continuously*, or your plant shuts down, as everybody knows. The way to be *sure* of good oil, continuously, is to have it handled by a Bowser system—with these eleven advantages:



1—Entirely automatic.
2—Plenty of cool, clean oil all the time.
3—Mechanical efficiency of units greatly increased.
4—Oil used over and over again; none wasted.
5—Cost of attendance is reduced.
6—Wear practically eliminated; over-heating does not occur.
7—Depreciation greatly reduced.
8—Lubricant washes out foreign substances.
9—Fire hazard decreased.
10—Compensation losses reduced—men do not have to climb around machinery.
11—Periods between bearing adjustments materially increased, because oil retains full lubricating quality.

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NORTHERN NEW YORK NEWS

Paper Mills Hold Annual Elections

Albany Corrugated Container Corp.—This company has absorbed the Yorkshire Corrugated Box Co., and becomes Albany's newest industry. A fully equipped plant will allow the production of 1,200 carloads of corrugated fiber boxes each year. Delivery will be made within 100 miles by truck.

Officers elected are: President, Claude C. Nuckols; vice-president, Joseph A. Seery; secretary, Cornell S. Hawley.

Algonquin Paper Corp. Elects Officers—The Algonquin Paper Corp., Ogdensburg, N. Y. elected the following officers at its annual meeting: President, Frank A. Augsbury; vice-president, C. S. Cook; secretary and treasurer, Wm. E. Westbrook. The directors are: F. A. Augsbury, C. S. Cook, W. E. Westbrook, S. M. Williams and W. F. Augsbury.

Warren President Re-elected—J. J. Warren has been re-elected president of the Warren Parchment Co., Dexter, N. Y. D. F. Warren was elected treasurer and manager, and R. E. Skinner, secretary.

Harmon Elects New Director—W. J. Argy, general manager of the Harmon Paper Co., Brownville, N. Y., has been elected a member of the board of directors. Other directors are: J. J. Warren, D. F. Warren, F. M. Boyer and R. E. Skinner. J. J. Warren is president and treasurer; R. E. Skinner, secretary, and F. M. Boyer, assistant secretary.

St. Regis Increases Stock—The Board of Directors has authorized an increase in the capital stock of the St. Regis Paper Co. from 750,000 shares of common without par value, to 1,000,000 shares, and from 50,000 shares of seven per cent preferred to 100,000.

The following directors were elected: D. M. Anderson, Jonathan Bulkley, H. E. Machold, Alvah Miller, A. M. Dick, Floyd L. Carlisle, W. K. Dick, D. C. Middleton, C. E. Norris, B. B. Taggart, John N. Carlisle, Frank A. Empsall, R. V. Maltby, J. J. Warren and R. K. Ferguson.

Carl Schneider, for several months at the Panchete board plant at Trenton, N. J., has returned to Oswego where he has joined the engineering staff of the Oswego Board Corp.

Arrangements to handle 20,000 cords of pulpwood through the port of Oswego for the Oswego Falls Corp. at Fulton have been made by George S. Kerr of the Kerr Pulpwood Co. of Cambellton, N. B.

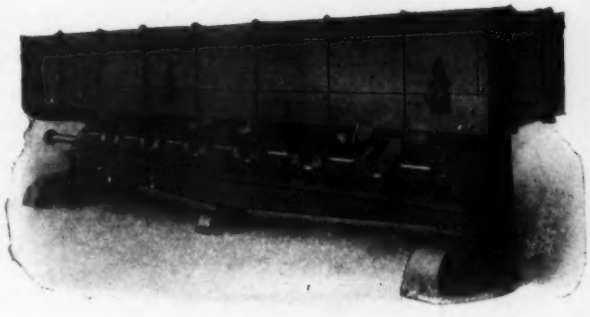
Plans for the construction of a $2,000,000 mill at Hudson Falls by the Union Bag and Paper Co., have been temporarily halted. Work was to have started this spring, but present indications are that nothing will be done before the spring of 1930. Funds raised for the eastern project will be used for the erection of a $2,000,000 mill near Tacoma, Wash.

The paper industry at Fort Edward is very encouraging. The converting of the mill of the International Paper Co. into a book paper plant at an estimated cost of $2,000,000, has given employment to a large number of additional hands. It is said that the payroll of the mill will be the largest in its history.

A bill which, if carried, will mean an appropriation of $100,000,000 for reforestation in New York State, is in the legislature. It is in the form of a constitutional amendment which would enable the State to carry out the most extensive program of reforestation known. It would extend over a considerable period and it would give the State authority to purchase non-productive land and plant it with trees. Several hundred thousand acres of idle land would be reclaimed.

The International Brotherhood of Paper Makers is expected to ask for a wage conference in March. Men high in the

Quality Pulp



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Solid turned C. I. Cams openside type — cam shaft removable through side.

Uniform suction and blast.

Extra heavy cast iron legs and bridge free for rigidity.

Camshoe holder and Pitman cast integral.

Latest approved design—

High grade workmanship and materials.

Made in sizes from 6 to 16 plates.

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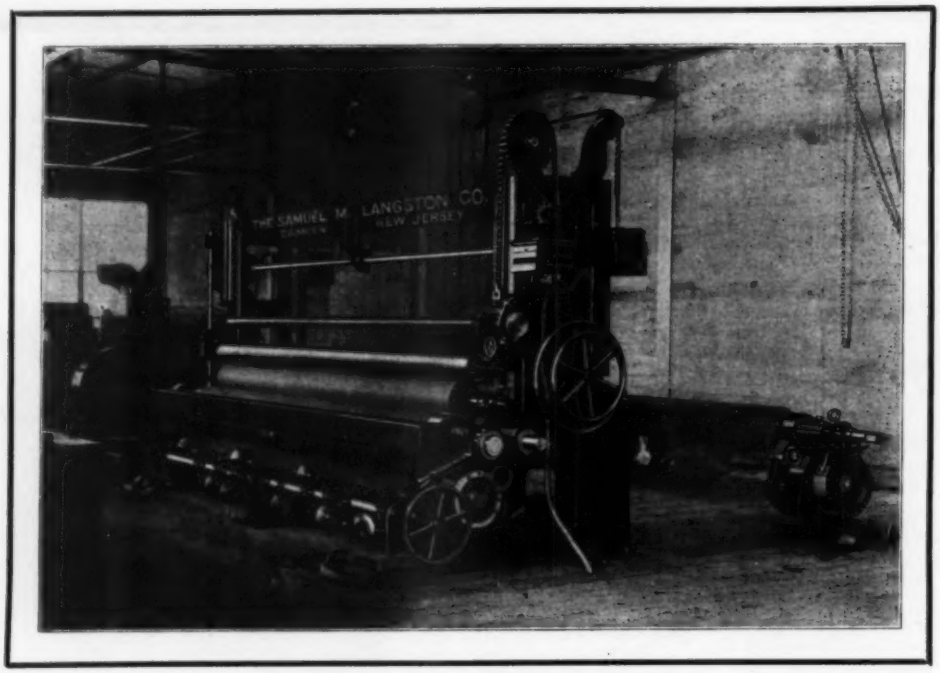


WHY

you can make better rolls on the Langston

ROLLS of just the desired degree of tightness, of uniform density, easy to separate, *dustless.*

The making of rolls that meet these specifications presents no special difficulty in mills that use Langston Slitters. Here are some of the reasons:

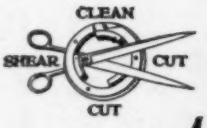
Take the matter of tension. With the Langston winding principle it is a simple matter to produce rolls of exactly the required tightness. You can wind rolls that are tight, starting with the first wrap of the paper around the rewinding shaft, and the tension can be maintained evenly right up to the maximum diameter. This means uniform density.

Rolls made on a Langston are free from dust. The Langston Shear Cut produces the same character of cut as that made by a pair of shears, without dust or lint.

Further, the Langston Shear Cut principle means that every roll is cut all the way through. The cut is continuous every inch of the way, clean through the paper from the outside to the center of the roll. No occasional breaks in the cut which cause grief when it comes to separating the rolls, if not actual damage.

The more exacting the requirements your rolls must fulfill, the more you need a Langston.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey

LANGSTON 

SLITTERS

union say there is no hope of any increase in wages as the conditions of the trade do not warrant it. They feel, however, that a conference should be held so that minor matters of difference can be ironed out.

A. E. Lester, power foreman of the Carthage Pulp and Board Co., Carthage, N. Y., disappeared from his duties at the plant more than a month ago and has not been heard from since. As soon as his absence from duty was discovered, thorough search was made at the plant and notices of his disappearance sent throughout the East. It is thought he is suffering a lapse of memory due to an injury received some years ago.

Five of the small paper machines in the Corinth mill of the International Paper Co., together with the Curtis pulp mill, shut down indefinitely last month. About 250 men were thrown out of work. No information was forthcoming from the Corinth mill officers as to the length of the shut down. It is reported that eventually the five small machines will be removed to make room for two larger machines.

Complaints Filed With I. C. C.

Two complaints of the St. Regis Paper Co., the Harrisville Paper Co. and the Algonquin Paper Corp. have been filed with the Interstate Commerce Commission. The complainants charge that the rates on newsprint in carload lots from producing points are unduly prejudicial and unduly preferential of the complainants' New England competitors.

The allied paper companies are shipping 100,000 tons of newsprint each year into the territories in which they seek reduced rates. At the present time, the rate from Carthage to New York is 25 cents per 100 pounds or $5 a ton. The rate from Harrisville, Ogdensburg, Norwood, Norfolk and Raymondville is 27 cents or $5.40 a ton. The International Paper Co. filed a like complaint on newsprint rates from mills of the company at Pyrites, Corinth and Chatland.

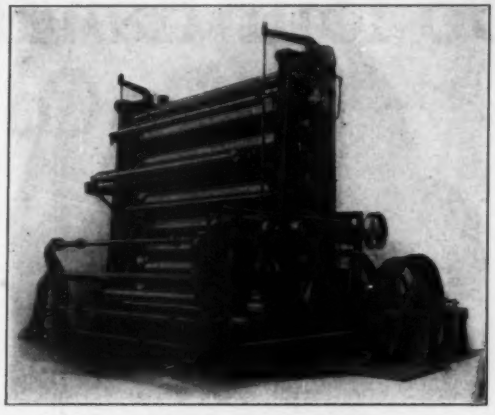
Charles W. Valentine, president of the Bagley & Sewall Co., manufacturers of papermaking machinery, has been granted a patent to improve the formation of the paper sheets. The patent is described as follows: "In a papermaking machine, the combination with the making wire, of a rotary carrier mounted above the wire and provided with a plurality of thin edged projections extending widthwise of the carrier and radially from its surface and dipping into the stock on the wire, means for driving the carrier, and means for regulating the speed of the carrier, so that it may be given a speed having a predetermined ratio to the speed of the stock on the wire."

NEW YORK CITY NEWS

Philip T. Dodge Marries

The many friends in the paper industry of Philip T. Dodge, formerly president and chairman of the Board of the International Paper Co., and for a long period of years one of the foremost members of the paper manufacturing fraternity, of the country, will be interested and pleased to learn of his marriage on January 27 to Miss Lilias Sutherland, of New York City, daughter of Mrs. John Sutherland and the late Mr. Sutherland of Seattle, Wash. The wedding took place at the home of the Rev. Dr. Clarence Bleakney, who performed the ceremony, at 12 Gould avenue, Newark, N. J., in the presence of relatives and a few close friends of the couple. Mr. Dodge is 76 years of age, and his bride is 56. The ceremony was followed by a small reception and dinner.

Mr. Dodge is president of the Mergenthaler Linotype Co., and a director of the Bank of New York and Trust Co., and the American Surety Co. He is also prominently identified with the Royal Typewriter Co. and with other commercial enterprises. In 1925 he resigned as chairman of the Board of the



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NORWOOD

Paper Finishing Machinery

You will find that it will save you time, trouble and money to standardize on Norwood Paper Finishing Machinery. Norwood's years of experience in the service of the paper industry have resulted in the designing and building of sturdy machinery with common sense features and dependable quality which you can rely upon to help you in getting continuous, efficient and speedy production. It will pay you to standardize on Norwood Paper Finishing Machinery.

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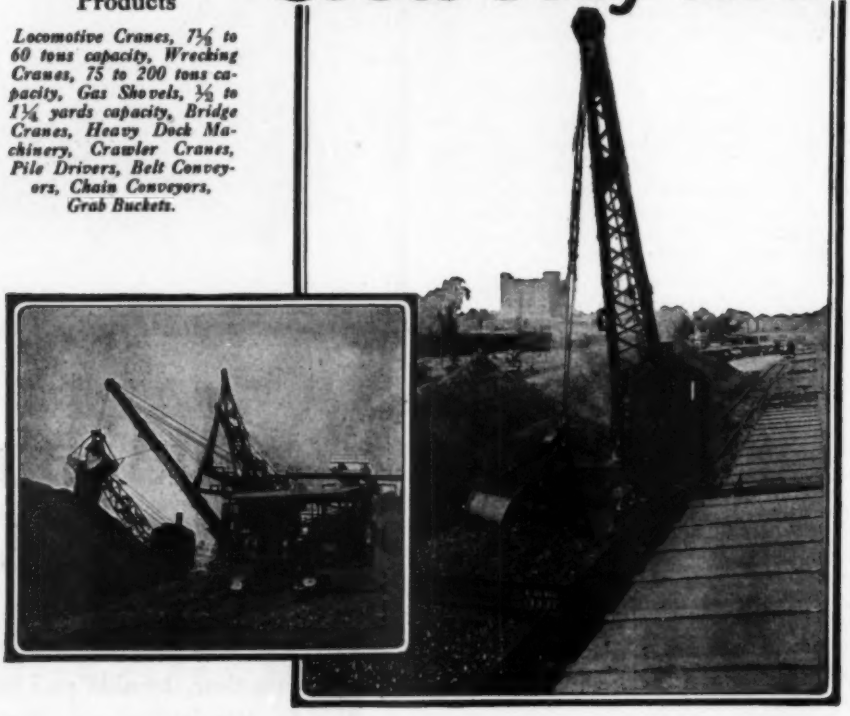
FLORENCE, MASS.

FILTERS SUPER-CALENDERS GLASSINE-CALENDERS PLATERS DUSTERS BRUSHING ENGINES

Do Your Handling Costs Play Hookey?

Products

Locomotive Cranes, 7½ to 60 tons capacity, Wrecking Cranes, 75 to 200 tons capacity, Gas Shovels, ⅜ to 1¼ yards capacity, Bridge Cranes, Heavy Dock Machinery, Crawler Cranes, Pile Drivers, Belt Conveyors, Chain Conveyors, Grab Buckets.



Handling costs, like school boys, often get beyond control and are lost sight of in the bigger scheme of a large manufacturing schedule. Yet authorities say that handling is one of the most costly parts of production and one place where big economies may still be effected.

For handling material in the yard, unloading of castings, bars and scrap, stocking of coal, loading of finished product and a score of other uses, no equipment will equal a locomotive crane in speed or operating economy.

If there is any doubt in your mind as to where you stand on handling costs get in touch with one of our representatives. He has been of service to many companies with problems identical with your own. And you can rely on his recommendations because of the universal satisfaction Industrial Brownhoist equipment has given for half a century.

Industrial Brownhoist Corporation

General Offices: Cleveland, Ohio.

District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, St. Louis, San Francisco, New Orleans, Bay City, Mich.

INDUSTRIAL BROWNHOIST

International Paper Co., and from 1913 to 1924 was president of that company. Mr. Dodge and his first wife were married in 1876, and were divorced about 15 years ago.

For the six months ended November 26, 1927, profits of the United Paperboard Co., Inc., with main offices in New York City and with plants at various points in the country, amounted to $407,946, after expenses and reserves for Federal taxes but before depreciation. In the previous year the company reported net earnings for the similar period of $168,268 after expenses and ordinary taxes but before depreciation and Federal taxes.

The Kimberly-Clark Co. of Neenah, Wis. has leased the entire twenty-seventh floor in the new fifty-two story Chanin Building now in the course of construction at Forty-second St. and Lexington Ave., New York, for eastern office headquarters. Associated with the company in the occupancy of these offices will be the Spruce Falls Power and Paper Co. of Canada and the International Cellucotton Products Co. of Wisconsin.

H. Reeve Angel & Co., Inc., paper importers of 7 Spruce St., New York, have increased their capital stock from $125,000 to $160,000.

Matthias Plum, Jr.

Matthias Plum, Jr., vice president and general manager of the United Paperboard Co., Inc., of New York, died in the Park West Hospital in this city on January 15 following an operation.

Mr. Plum was born in Newark, N. J., on December 8, 1865. His father was the founder of Matthias Plum, Inc., Newark printers and stationers, at one time the largest firm of its kind in New Jersey. Mr. Plum was the founder of the Waverly Paper Board Co. of Newark. A widow, two sons and a daughter survive.

The International Paper Co. has announced an extension of its offer to exchange its seven per cent cumulative preferred stock for twenty-year 6½ per cent bonds, series A, of the Continental Paper and Bag Mills Corporation, to and including January 16. The offer was first made on November 1, conditional upon 90 per cent of the stock being deposited with the Chase National Bank before December 15, but that amount had not been deposited to that date.

The Walker, Goulard, Plenn Co., Inc., paper merchants and mill agents who succeeded to the business of the old Maurice O'Meara Co. of 448 Pearl street, New York, has added a paper mill supplies department under the direction of George O. Meyer, long affiliated with the paper stock trade. The department will handle all grades of rags, waste paper and other raw materials consumed in the manufacture of paper and board.

Isaac Minsky, formerly in business under his own name at 200 Fifth Ave., New York, and long a prominent dealer in new cotton rags for paper mills, is now associated with Robert Blank, broker in paper mill supplies of 140 Nassau St., New York, in charge of Mr. Blank's new cotton cutting department.

Affiliated Engineering Companies, of Montreal, have been awarded a contract by the Brown Corp. for supplying complete fuel burning equipment to go under two 518 h. p. Heine boilers at present installed at the La Tuque mill. Taylor underfeed stokers will replace the existing chain-grate stokers. A. E. Co. water-walls will be applied to the furnaces, and Allen-Sherman-Hoff cast iron refractory-lined ash hoppers fitted with A-S-H collecting ash grates will be installed. The remodelled units are each designed to burn Dominion slack coal at ratings up to 250 per cent continuously with peaks of 300 per cent and over.

RYERSON

Immediate Shipment from Stock

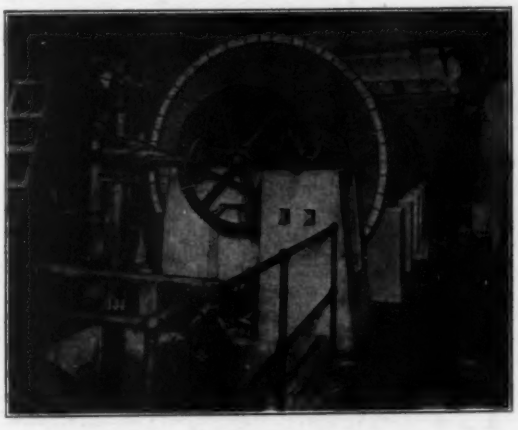
Bars, Shapes, Structurals, Rails, Plates, Sheets, Rivets, Bolts, Nails, Wire, Chain, Turnbuckles, Shafting, Boiler Tubes, Boiler Fittings, Corrugated Sheets, Concrete Reinforcing, Welding Rods, Babbitt Metal, Tool Steel, Bar Iron, Refined Iron, Floor Plates, Safety Treads, Small Tools, Machine Tools, etc.

Write for the Journal and Stock List—the "key" to Immediate Steel.

JOSEPH T. RYERSON & SON INC.

Chicago Milwaukee Buffalo St. Louis New York Cincinnati Boston Detroit

STEEL



Paper Mill Tanks

The above installation in a well-known Ohio paper mill is only one of Hauser-Stander's successful installations.

Hauser-Stander has been building tanks for over fifty years and has particular knowledge of paper mill men's requirements.

The Hauser-Stander Tank Co.
CINCINNATI, OHIO

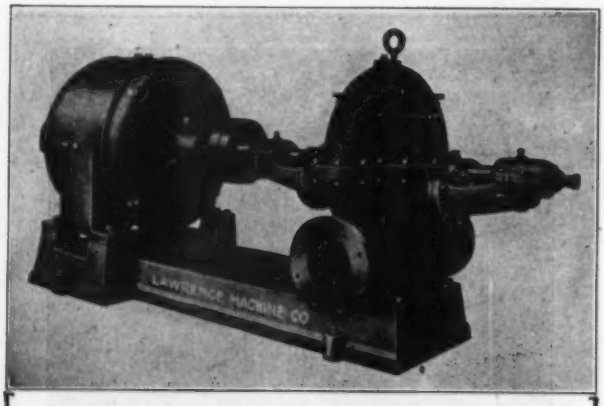
Wood Tanks of All Kinds

We build round tanks in a great variety of diameters and heights ranging in capacity from 25 gallons to upwards of 125,000 gallons. We are equipped to build special tanks of all types for use in the paper industry.

Our engineering department will assist you and advise you concerning Acid Towers, Stave Pipe, and Wood Tanks of All Kinds.

THE A. T. STEARNS LUMBER CO.

NEPONSET BOSTON, MASS.



LAWRENCE Centrifugal turbine pump, single stage, horizontally split casing, double suction enclosed impeller, high pressure pumps for water supply service, designed and built in all sizes to meet all conditions. Direct connected to electric motors, steam turbines, gasoline engines, etc. Material and workmanship of the highest class. Please submit to our engineering department your specifications. Prompt service rendered at all times.

LAWRENCE MACHINE & PUMP CO.
LAWRENCE, MASS.
Manufacturer of "Lawrence" Pump, Centrifugal Pumping Machinery, Vertical Steam Engines, Contractors for Special Machinery

POWELL VALVES

Offer Service
You Will Be Proud to Relate

Fig. 478
All Iron Pilot Gate Valve with outside screw stem

Every product, regardless of size or service recommendation, is accurately tested to limits greatly in excess of working pressures.

Powell Valves are made for nearly every service demand — water, steam, air, or gas, also special valves for handling pulp — sulphite and caustic liquors and acid solutions.

We manufacture a complete line of bronze, iron and steel globe, angle, cross, and check valves; also oilers, lubricators, grease cups, oil and water gauges, whistles, etc.

Dealers with stocks in all principal business centers.

THE WM. POWELL CO.
2521-2531 Spring Grove Ave.
CINCINNATI, OHIO

NEW ENGLAND NEWS

Survey of New England Completed

The New England Council has completed a survey of the pulp and paper industry of New England and finds that the contribution of this section to the country's total output is 28 per cent. Census figures show it to be a decrease of 5 per cent since 1914. The total value of the New England product, however, has increased since the pre war period by 131 per cent as compared to 171 per cent for the country as a whole. Maine, Massachusetts, New Hampshire and Connecticut are ranked in that order of importance with Vermont and Rhode Island last. It was found that there was a far less tendency to change management within the paper industry during the past three decades and the average period of control of present management is 23 years. The paper industry ranks fourth in New England, after woolen and cotton textiles and shoes.

In answering the query as to why they prefer the New England location, most firms reported the nearness to markets and favorable freight rates as the reason, the New York market being chiefly referred to in this connection. The second most potent reason for retaining a New England location was the excellence of water power and the purity of process water. It was found in the survey that only 8 per cent of the 40,000 employees in New England paper mills are paid on the basis of wage incentive, which is taken to mean a piece work basis. Naturally the industry in many departments does not lend itself to this method. Since the war, it was found that 80 per cent of all the mills had effected improvements of various kinds in their equipment, and it is noteworthy that the leading purpose was to secure accident prevention. Increase in sales has been about 6 per cent since 1921 and in Maine 18 per cent in 1922 but has remained unchanged since. The latter figure was partly due no doubt to the settlement of the I. P. strike. During the past three years 35 per cent of the companies reporting showed an increase in sales, but, on the other side, the same percentage report declines in sales. Better sales methods, lower manufacturing costs and new products are given as the reasons for increases, and western competition, overproduction and labor costs are given as the unfavorable factors.

Since 1921 80 per cent of the reporting mills announce increases in their New England sales due to more intensive canvassing and increased regional demand. Contrary to general opinion, the overwhelming proportion of the paper sales of New England (not including sales to converters) are through merchants. The average sales costs for 35 selected mills was 4.4 per cent of the value of the product.

Exports of all mills in this group during the past five years have been between 3 and 4 per cent of total sales, while those of Massachusetts alone rose from 1.3 per cent to 2.8 per cent in 1925. The increase in the Bay State is accredited to energetic foreign sales policies of the fine paper mills, and the other export sales consist largely of newsprint to Cuba and Latin America generally.

In commenting on their findings, the New England Council spoke of the following outstanding changes it had noted in the paper industry of this section since the war; smaller merchant and larger mill stocks, increase in sale of mill advertised brands, conservatism of buyers as against speculation, finer discrimination as to quality, and increase of small orders and express shipments.

Tileston & Hollingsworth Co., continue with success their series of calendar discussions before various printing organizations of New England. They have thirteen printers makeup, and print one each of the 12 month pages and the cover of their annual calendar each using a different grade of the T. & H. lines. An eminent Boston printer and authority on the craft analyses the sheets before the Typothetae of all leading New England cities. Another publicity feature devised by this company is the exhibition of their products in the Boston Chamber of Commerce, in company with a display of New England products.

A New Measure of Instrument Value!

THE
FOXBORO CO., INC.
GUARANTEES TO REPAIR OR REPLACE FREE OF CHARGE FOR ONE YEAR FROM DATE OF SHIPMENT, ANY INSTRUMENT THAT DOES NOT PROVE PERMANENT IN CALIBRATION AND FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL
BEFORE REMOVING THIS SEAL
READ THE GUARANTEE AND INSTALLATION INSTRUCTIONS
FINAL INSPECTION
BY 241
FOXBORO

HERE is a definite pledge which establishes a new measure of instrument value. It is the Foxboro Guarantee and permanent calibration, workmanship and materials sealed to each recording and controlling instrument.

This sealed guarantee is tangible evidence that the instrument is capable of performing the work for which it is designed.

If it were not for the years of technical research, the accumulation of practical knowledge of instrument requirements in many industrial fields and the perfection of details to meet these varied requirements, such a guarantee would not be possible.

The superior accuracy and performance of Foxboro Instruments have been demonstrated for years in the paper industry.

Foxboro performance is a KNOWN QUANTITY. That's why it can be guaranteed.

When you need accurate and dependable instruments of KNOWN QUALITY, write or wire our nearest branch office.

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PITTSBURGH · CLEVELAND · ROCHESTER, N. Y. · ATLANTA
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FOXBORO
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THE COMPASS OF INDUSTRY

INSTRUMENTS FOR INDICATING, RECORDING AND CONTROLLING TEMPERATURE, PRESSURE, HUMIDITY AND FLOW

Three generations of experience enter into these felts

In advertising the new Ford car one of the claims is that it embodies the experience gained in making 15,000,000 automobiles.

With Henry Ford, we too can say that experience is a great teacher. Hamilton Felts embody the accumlated experience of three generations, seventy years of felt making.

During these years we have learned what to do, as well as what not to do. The result is that Hamilton Felts are right — they are made of the proper mixture of wool, and in a way that will give you lower production costs; save you in steam and coal; give you more and better tonnage.

Hamilton Felts on your machines are a positive asset. They last longer with less down time for washings. What is more, they have that hard-to-get combination of great strength with maximum water removing qualities.

Try a Hamilton Felt in the machine that gives you the most trouble. Test it out. Compare it. Put it to any trial you think a felt ought to have. You'll soon find that there are felts and there are Hamilton Felts.

Ask the Hamilton Felt Man. He's a felt expert man who can give you the felt that will exactly suit your machines, product, and mill conditions. Talk to him the next time he calls or write to us direct.

Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

Shuler and Benninghofen, Hamilton, Ohio

The Miami Woolen Mills

ESTABLISHED 1858

Hamilton Felts

Eastern Elects Edward M. Graham President

At the recent meeting of the Eastern Manufacturing Co., Bangor, Me., Edward M. Graham, president of the Bangor Hydro-Electric Co., was elected president, succeeding Stuart Webb of Boston. Mr. Graham has been head of the Atlantic Precision Co., the Eastern's subsidiary which manufactures its weighing instrument.

Arrangements were also completed at this meeting to move the Boston office to Bangor. Henry Guild, of the Boston office, will continue with the company at Bangor as vice-president. A group of engineering experts, who have been examining the plant, will continue their investigation and report suggested changes for more efficient operation.

The New England Paper Merchants Ass'n., of which Matthew O. Byrne is president, report great success in resale price selling. A year ago they conversed with representatives of several mills on the feasibility of the idea and practically all the important No. 2 kraft manufacturers and several of those making No. 1 kraft agreed to quote their paper on a resale basis in New England. It is possible that this may be extended to tissues and manilas. The resale quotations of the mills are all suggested, but are accepted by the merchants, and their use has greatly diminished the chaos in the wrapping paper market of this section.

The Paper Users Standardization Bureau of the American Writing Paper Co., under the general supervision of S. L. Willson is being taken up by a growing list of large corporations. Despite the fact that the A. W. P. Co., is famed for its rag content papers, the use of high priced stock in temporary forms is a waste that the Bureau's experts have so frequently discovered in their analysis that they have invariably effected a net saving in a corporation's paper bills after suggested changes in grades used have been carried out.

Growing use of the intercoastal steamship lines by New England paper mills for securing supplies of old books and magazines from the Pacific Coast is noted. Representatives of San Francisco and Los Angeles firms have been in New England this winter and have placed orders for large tonnages of No. 1 old books and magazines with Fitchburg and other eastern Massachusetts mills. The market incidentally has been very strong, and the larger consumers have advanced their top prices to $1.65 to $1.70 per hundred pounds delivered Fitchburg points on packing free of ground wood and coated paper.

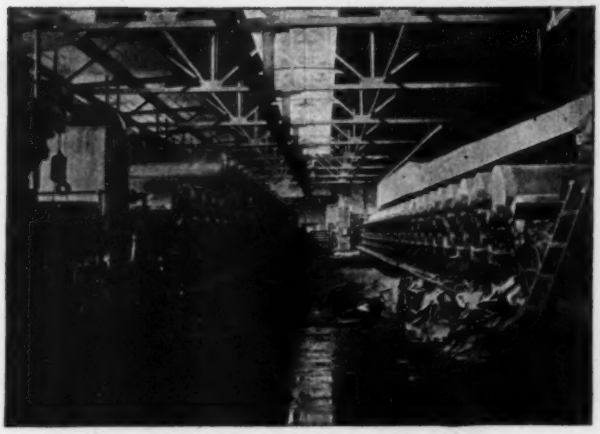
A. G. Stone has succeeded P. E. McCarthy as mill manager of the Continental Paper & Bag Mills of Rumford Me. Mr. Stone has previously been employed by the Marinette-Menominee Paper Co., of Menominee Mich., Spanish River Paper Co., Peerless Paper Co., and Great Northern Paper Co.

The Collins Mfg. Co., of North Wilbraham Mass., has dropped its suit against the Wickwire Spencer Steel Corp., without prejudice to renewing it within a year. The case was being heard in the Federal District Court at Boston, and involved the alleged pollution of the Chicopee River, from which the paper company derives its process water.

Champion Fibre Co., of Canton N. C., is to sell in New England a line of bleached and unbleached boards which will be merchandised through a special representative working in co-operation with its Boston sales representative.

Northern Paper Mills of Green Bay Wis., offered prizes for the largest net increase in sale of its products in a contest between the B. F. Bond Paper Co., of Baltimore and the D. F. Munroe Co., of Boston. The Boston firm with an increase from September to December of 1927 of 400 per cent over the rest of the year won the prizes.

Lowell Emerson, president of the Rhode Island Cardboard Co., doing business in Pawtucket, R. I., has purchased through the Emerson Realty Co., of which he is also president, the



Uniform . . . Paper

We help you make it

22 years of experience in doing one thing—

Concentrated, patient effort to daily improve in the doing has made us acknowledged specialists in recovering paper mill rolls.

Flawless in texture—unvarying in density—and from end to end uniform in quality and hardness.

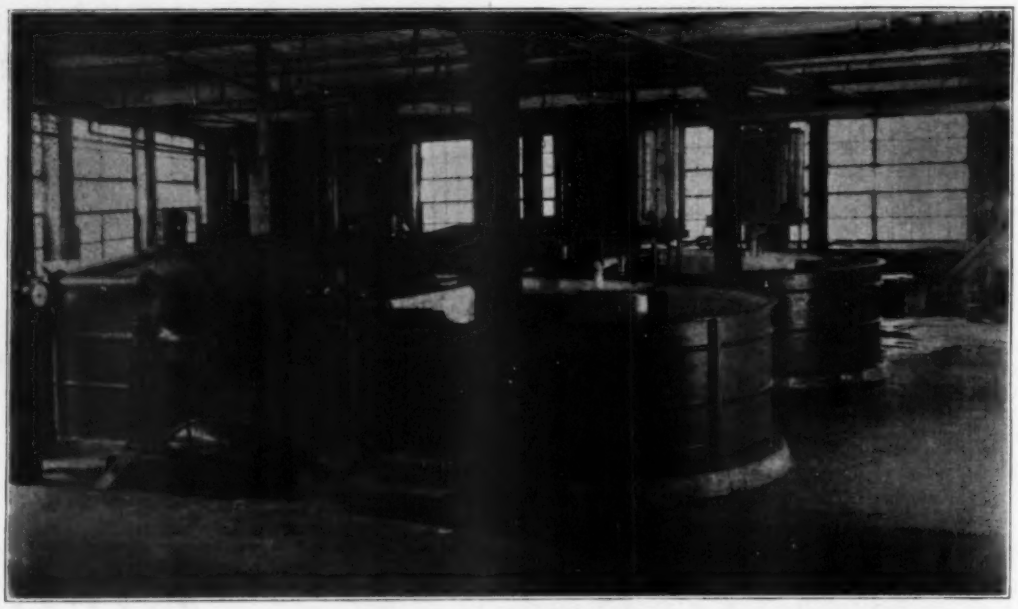
We set the standard for roll coverings.

And speed and outstanding service become accessory features.

When your rolls need recovering test us for speed and quality of workmanship. Let Pacemaker supply your belting needs.

THE CINCINNATI RUBBER MFG. CO.

Cincinnati, Ohio



Unretouched photograph showing two Mid-West Hi-Speed beaters producing all the stock required for both machines at The Mead Pulp & Paper Company mill, Dayton, Ohio.

THE Mead Pulp & Paper Company owns and operates a mill at Dayton, Ohio, known as their Peerless Division. It is equipped with two Fourdrinier machines trimming 84" and 102" respectively.

The present equipment of two Mid-West Hi-Speed beaters has replaced six 1300 pound Holland beaters, resulting in a most compact, easily operated beating system, requiring a remarkably small amount of labor and power.

This installation speaks for itself. It speaks with a strong voice to the Production Manager, who is vitally concerned in reducing costs in his mill.

Compare this beater room with conditions in your own mill.

Can you honestly say that you are satisfied with your production costs?

Do you know what it costs to prepare a ton of stock in your beaters? Can you reduce your beater room costs $1.00 per ton and maintain your present production?

It will pay you well to know more about this Mid-West Hi-Speed beater.

WRITE TODAY!

THE MID-WEST MACHINE COMPANY

DAYTON, OHIO

"There is a World of Difference in Beaters"

plant of the Home Bleachery Dye Works in Pawtucket, which has been idle for some time. Report has it that the new owners intend to completely equip the buildings with machinery for the manufacture of cardboard. It is said that with the price of the building and new machinery the owners plan an expenditure of about $1,000,000.

S. D. Warren Co., is making progress with its new coating mill which will give it one of the largest coated paper capacities in the country. The new mill which is at the Cumberland Mills, Me., plant will be finished around the middle of the year.

James J. Kelly, 136 Federal St., Boston, dealer in paper mill supplies including rags, bagging, waste paper, etc., has acquired the New England representation for the packing of J. Chapman & Sons of Chicago.

L. F. Peck, sales representative on fine papers for the American Writing Paper Co., in Boston, who was highly regarded by the merchants of the Hub as a contact man, passed away late in January after a very brief illness.

The United Paper Board Co., well known manufacturers of paper board, strawboard, etc., have opened offices in Boston for the first time in many years. They are located on the second floor of 683 Atlantic Ave., Boston, and are in charge of E. J. Smith and P. E. Allen. Mr. Allen was formerly manager of the Benton, Me., pulp mill.

Judge Burns, of the Superior Court at Pittsfield, Mass., has allowed the accounts and reports of Henry L. Harrington, former head of the Berkshire Hills Paper Co., in receivership, from June 20 to November 30. Opposition from creditors was overruled.

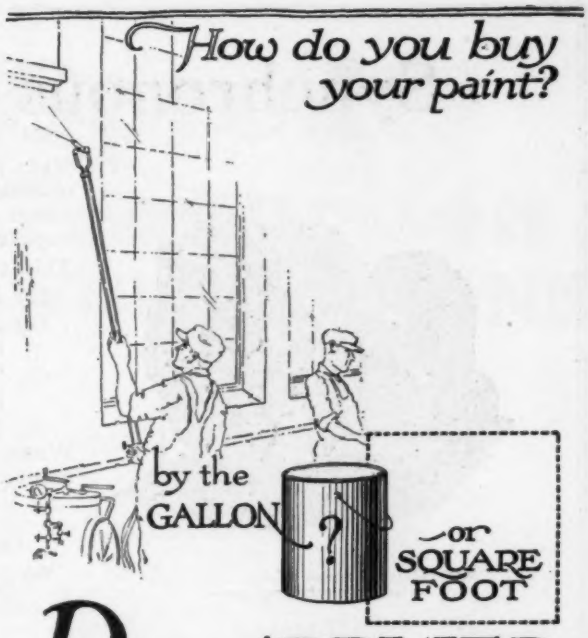
Whitmore Manufacturing Co., has been definitely sold to the Marvellum Co., of Holyoke. The price involved is understood to have been $135,000. This included the $100,000 mortgage which the Marvellum Co. assumes. Only $35,000 is, therefore, paid in cash. Besides this, creditors of the Whitmore Mfg. Co., are assured that outstanding receivables will be paid to the receiver and divided pro rata among creditors.

G. F. Russell of the Champion International Co., of Lawrence Mass., was elected chairman of the New England Paper & Pulp Traffic Assn., at its annual meeting held in January. F. Manley Ives continues as counsel, C. L. Whittemore as secretary and traffic manager, A. A. Raphael as assistant traffic manager and H. Loomis as chief of the tariff bureau.

In the annual report of the traffic manager it was pointed out that the New England Paper & Pulp Traffic Assn. would intervene in the rate case instituted by the International Paper Co., on china clay rates from Boston to its various mills. It was also pointed out that there was prospect of an agreement on the Southern classification case with a favorable adjustment for paper from New England. The Maine Central increases on sulphur from Boston will be opposed strongly. Further efforts were promised by the traffic manager looking towards the establishment of stop-off in transit rates on paper.

Charles J. Foley has succeeded his father, the late William Foley, expert on groundwood manufacture, as superintendent of the Kekonegan Paper Co., of Old Town, Me. Mr. Foley worked with his father for years in the production of mechanical pulp, and has thoroughly mastered the technique of the industry.

The new equipment of the Mystic Terminal Co., for unloading china clay has been delivered by the makers, the Holly Pneumatic Systems Inc., of New York, but installation has been delayed. It will probably be set up this month and tested out on one of the currently arriving china clay boats from Fowey. It is expected that the time formerly required for unloading at a great labor expense, will be cut in half.



Paint APPLIED is the Real test

BUY most any paint on a gallon price basis and the big question of cost—application—is still before you.

Buy Vorcolite and your application cost is automatically cut to the lowest possible point, because with this purchase we loan you Vortex painting equipment with which your own handy man can put it on the wall.

There is no better paint than Vorcolite and none so perfectly adapted to gun application. No other painting equipment covers large surfaces half so fast as the Vortex equipment, nor so well, nor with such freedom from cumbersome ladders and planks. By no other means can a surface be covered so perfectly in a single application.

Equipment furnished without cost

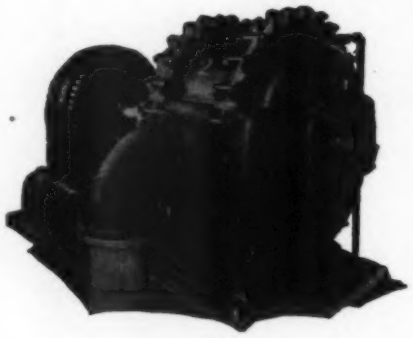
Send for the Vortex check sheet, as a first step toward buying your paint on a square foot basis. It will aid you in facing your painting problem fairly and squarely.

THE VORTEX MANUFACTURING CO.
1981 West 77th Street · · · Cleveland, Ohio

Vorcolite

and the VORTEX PAINTING METHOD

Synchronous motor-driven!



Nash Hytor Vacuum Pump, direct connected to synchronous motor.

Nash Hytor Vacuum Pumps can be direct connected to synchronous motors. The revolving field of the motor is mounted on the same shaft as the pump impeller.

This construction provides four distinct benefits:

(1) It is more compact than belt drive.

(2) Also more efficient. Power transmission losses between motor and pump are avoided.

(3) There are no belts, no gears, no extra bearings to take care of.

(4) Synchronous motor drive is dependable.

Write us or our representatives for further information.

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Western Representative
Mr. T. H. Savery, Jr., 80 E. Jackson Blvd., Chicago, Illinois.

Nash Hytor

VACUUM PUMPS AND COMPRESSORS

IMPROVED BADGER BLACK LIQUOR EVAPORATORS

Recent Installation
NORTHWEST PAPER CO.
Cloquet, Minn.

NON-FOAMING

MAXIMUM STEAM ECONOMY

NO ENTRAINMENT

SODA and SULPHATE PROCESSES

E. B. BADGER & SONS CO., Boston, U. S. A.

See page 314 in the 1925 Paper and Pulp Mill Catalogue

A power machine type blower driven by a Burke 125 h. p. motor will furnish suction.

The International Paper Co., is still operating a machine at its Franklin, N. H. mill. Reports had appeared in the daily press to the effect that the plant was to be closed. It is understood that Elmer Savage, formerly in charge there, has been transferred to Wellsburg, W. Va.

John H. Whitney, representing the Payne Whitney family interests, and Hilbert N. Schenck were elected directors of the Great Northern Paper Co., at a meeting of stockholders in Bangor. A president to succeed the late Garret Schenck will probably be chosen on February 8th at the meeting of directors.

MICHIGAN NEWS

Kalamazoo Valley Mills Hold Elections

Western Board and Paper Co. Elects New Director—At the annual meeting, January 19, B. C. Dickenson, president of the Standard Paper Co. was elected a director of the Western Board and Paper Co., Kalamazoo. The other directors were re-elected. A. E. Curtenius is president, C. G. Bard, vice-president; Winship A. Hodge, secretary and general manager, and Michael Redmond, treasurer.

Watervliet Paper Co. Re-elects Officers—All officers and directors of the Watervliet Paper Co. were re-elected at its annual meeting. The officers are: President, W. M. Loveland; vice-president, Charles B. Hays; secretary and assistant to president, Frank Gilchrist; treasurer, A. B. Scheid.

Sutherland Fills Vacancy in Directorate—To fill the vacancy caused by the death of the late A. M. Meincke, Chicago, L. M. Crockett of the Upjohn Co. was elected a member of the board of directors at the annual meeting of the Sutherland Paper Co., Kalamazoo. All the other directors were re-elected. The following are officers of the company and were re-elected: President, L. H. Sutherland; vice-president, O. S. Miller; secretary, F. W. Sutherland; treasurer, W. L. Otis.

Allied Mills Retains Directors—The entire board of directors was re-elected at the annual meeting of the Allied Paper Mills, Kalamazoo. The election of officers was deferred to the February meeting of the board of directors.

Standard Paper Increases Capital—All officers and directors of the Standard Paper Co., Kalamazoo, were re-elected at its annual meeting. The officers are: President, B. C. Dickinson; vice-president, J. H. Dewing; secretary-treasurer, A. L. Clark; general manager, J. F. Byrne.

At this meeting, the stockholders authorized the directors to increase the capital stock from $800,000 to $1,000,000. The new stock when issued will first be offered to present stockholders, and is for the purpose of financing a program to increase the company's output.

K. V. P. Co. Re-elects Officers and Directors—No change was made in the officers or directors of the Kalamazoo Vegetable Parchment Co., Kalamazoo, at its annual meeting. The officers are: President, Jacob Kindleberger; vice-president, C. H. Stearns; general manager, R. H. Hayward; secretary, Thomas W. Peck; treasurer, C. S. Campbell.

The rebuilding and re-equipping of the Watervliet Paper Company's plant, Watervliet, Mich. is progressing rapidly and will soon be completed.

The Bryant Paper Company, Kalamazoo, recently entertained about 75 members of the sales force of the Seaman Paper Co. Chicago. Sales conferences were held in Bryant's administration building, and a final social session was held at the Park Club.

Seven hundred fifty thousand shares of $10.00 par value common stock of the Consolidated Paper Co., Monroe, have been admitted for trading on the Detroit Stock Exchange.

Speed Production With DAYTONS

Securing a new customer may be a tribute to the salesman, but receiving that customer's repeat order is a compliment to the product itself.

For which reason we announce that approximately 80% of the nearly 400 Dayton High Speed Beaters now "speeding production" in some seventy odd mills represents repeat business—a truly wonderful tribute to this particular product.

Incidentally there are more Daytons in the mills of America and Canada that the entire field of competitive high speed builders can account for—further evidence that the Dayton ACTUALLY DOES dominate.

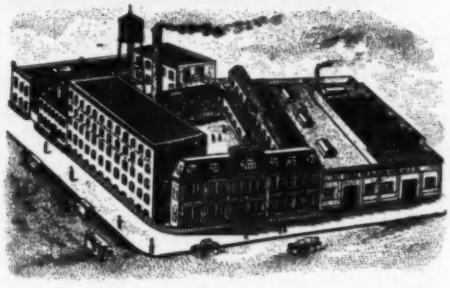
Entirely new equipment or old type engines reconstructed.
GET THE FACTS.

The Dayton Beater & Hoist Co., Dayton, Ohio

E. K. Mansfield Co.,
501 5th Ave., New York, N. Y.

DAYTON HIGH SPEED BEATERS

THE WM. CABBLE EXCELSIOR WIRE MANF'G CO.
MANUFACTURERS OF
Backing Wires
Cylinder Faces & Washer Wires
Red Brass Brush Wire
SUPERIOR FOURDRINIER WIRES



For 80 Years we have specialized in the manufacture of brass Fourdrinier Wires, Cylinder Covers, Washer Wires and Save-all Wires as well as Phosphor Bronze Fourdrinier Wires and Cylinder Covers.

Established 1848

Offices and Warehouses:

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143-151-163 Union Ave.
160-162 Union Ave.

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NEW YORK

BARRE GRANITE IN PRESS ROLLS

Is Revolutionizing the Whole Paper Making Industry

If your Paper Machines are not equipped with Press Rolls of BARRE GRANITE you are not getting the results that you should get, for it is a recognized fact that granite rolls are much superior to any others and Barre Granite the best of all. Let us tell you about them.

Jones Brothers Company

BARRE, VT. BOSTON, MASS.

In addition to the common stock, the company has an issue of $2,500,000 7 per cent preferred, of which $2,097,980 is outstanding. Last reports show that gross current assets are $1,841,631, as against current liabilities of $312,198. Gross assets as of July 2, 1927, are over eleven and one half million dollars. Surplus amounted to $1,576,706. Sales during the first six months of 1927 amounted to $5,023,422. Net earnings last reported were $974,031. Four plants are now being operated.

Receiver Asked for Lincoln Paper Mills

A petition was recently filed in the superior court asking that a receiver be appointed for the Lincoln Paper Mills, Elkhart, Ind., and an order issued to restrain this company from disposing of any of its assets, pending a hearing to make the order permanent.

The plaintiffs in the petition are Fred G. Dewey and Clarence D. Pratt, Kalamazoo bankers; Benjamin W. Combs, Stephen B. Monroe, Luella P. Hawkins, George C. Monroe, Herbert W. Parer, S. Fred Duncan, Charles F. Hunt, Stephen B. Monroe (as executor of the will of James Grant), Alex W. Macrie and Mabel M. Macrie.

The petition asserts that the board of directors was illegally chosen, and that the election of George O. Comfort as general manager by this board was an illegal act. It is further stated that on December 15, 1927, the manager closed the mills without consulting the other directors and stockholders, and the cessation of operation has caused great damage to the mills and machinery from deterioration. Illegal acts on the part of the manager in disposing of assets of the company at less than real value are also alleged.

It is stated it will be impossible to arrive at the true financial condition of the mills until a receiver, provided one is appointed, has had opportunity to investigate the assets and liabilities.

Kalamazoo Company Incorporates in Delaware

Western Paper Makers Chemical Co. of Michigan has incorporated under the laws of the State of Delaware, with an authorized capital of $5,000,000, and will operate all Michigan properties, also plants in Wisconsin, Indiana and Canada, as well as the immense resin properties in Florida and Georgia.

An additional unit of the first magnitude, which is to be included in the chain, will be the new chemical plant at Marrero, the industrial district of New Orleans. Ten acres have been purchased and options taken on 15 additional acres. This unit will manufacture a complete line of chemicals and will serve the trade in the rapidly growing Louisiana and Texas fields. When completed, this plant will cost approximately $250,000.

K. V. P. to Add Another Machine

The Kalamazoo Vegetable Parchment Co., has placed an order with the Beloit Iron Works for the second machine for the new mill. This machine will be 166 inches wide with 41 huge dryers, and will be one of the largest machines in the Kalamazoo River valley district.

At a recent annual meeting of the stockholders of the company, the program of expansion that is now being worked out was approved. This company's two mills are now operating at capacity.

At the meeting of the Kalamazoo Valley Division of the Cost and Technical Ass'n. at the Columbia Hotel, Kalamazoo, January 26, Frank L. Brown of the Michigan Paper Co., Norman Cowie, Hawthorne Paper Co. and Harry C. Bradford, Rex Paper Co., told of the methods employed in their respective mills. James A. Wise, assistant general superintendent of the Bryant Paper Co. read a paper on "Finishing Machinery from the Mechanical Engineer's Standpoint."

The Michigan Division of the Superintendents' Ass'n met at the Park-American Hotel, Kalamazoo, January 19. The main speaker of the evening was August Merz, of Heller and

1500 hours and more on Glassine

This is the record being made by Butterworth Calender Rolls in some of the larger paper mills of the country. For super, glassine and coated.

H. W. BUTTERWORTH & SONS CO.
Established 1820
PHILADELPHIA
Plants at Philadelphia and Bethayres, Pa.

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SIMONDS
Circular Saws and Machine Knives

For pulp and paper mills it is economy to use Simonds Saws and Barker, Chipper and Paper Cutter Knives because they hold their edge longer and cut faster. They are backed by a near century of experience. Write for catalogue and prices.

Simonds Saw and Steel Co.
Established 1832
Fitchburg, Mass.
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Longcrimp
Fourdrinier
Wires

USED EXTENSIVELY ON
Kraft, Wrapping and Newsprint Machines

Give Longer Average Service than the Regular Weave

Made By

The Lindsay Wire Weaving Company
(Collinwood Station) CLEVELAND, OHIO

See page 362 in the 1927 Paper and Pulp Mill Catalogue

OUR TENAX FELTS ARE THE SENSATION
OF THE
PAPER INDUSTRY THE WORLD OVER
NONUSERS ARE THE LOSERS

LOCKPORT FELT CO.

NEWFANE, NEW YORK

Merz Co. Mr. Merz spoke on "Economic Importance of the Coal Tar Chemical Industry." He gave a very comprehensive address and covered the subject quite thoroughly. He exemplified his talk with tables and statistical data which was received with much interest by those present.

St. Joseph Paper Plant Burns

The Mullen Brothers paper mill, formerly one of the leading manufacturing plants of St. Joseph, Mich. burned January 29. The property was recently purchased by the St. Joseph Paper Board and Box Co., and preparations for operating the plant had been made.

The loss which is estimated at $200,000 was only partially covered by insurance. The origin of the blaze is unknown.

The Joint Committee on Approved Pulp Testing Chemists recently approved for listing, Mr. Ivar Lundbeck, of the Lee Paper Co., Vicksburg, Mich.

The National Carbon Coated Paper Co., Sturgis, Mich. has purchased the Sturgis Register Co., and will erect a new factory adjacent to its present plant. The present organization of the Register Co. will be retained.

J. D. Byrne, general manager of the Standard Paper Co., Kalamazoo, has recovered sufficiently from injuries sustained in an automobile accident several months ago so that he is able to return to his duties for a short time each day.

H. C. Cobb, an employee of the Allied Paper Co., and for 15 years a resident of Kalamazoo, passed away recently after an illness of several weeks. Mr. Cobb was 54 years of age.

The Michigan Division Pulp and Paper Mill Superintendents Association will hold a joint meeting with the Cost and Technologists' Club, February 16, at the Park-American Hotel, Kalamazoo. Fred J. Rooney, National President of the Superintendents' Association will speak for the superintendents. There will also be speakers for the Cost and Technologists' Club.

Albert Benson, formerly a foreman at the plant of the Watervliet Paper Co., Watervliet, Mich. has been made superintendent of the Munising Paper Co.'s mill at Munising, Mich.

Edward John Rynbrand, of Kalamazoo, dropped dead January 7th while at his work at the Bryant Paper mill. Death was pronounced due to a heart attack.

Stephen Phillips, an employee of the Bryant Paper Co., Kalamazoo, recently sustained severe burns about the hands and face when the flue of one of the boilers blew out.

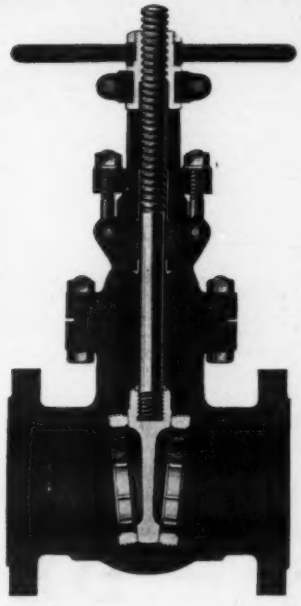
PACIFIC COAST NEWS

Because of the favor with which Portland and the immediate vicinity is being eyed by pulp and paper manufacturing companies already established in other parts of the United States, the Portland Chamber of Commerce is preparing extensive reports on raw materials, power and transportation facilities. Nine prospects have indicated the possibility of becoming established in the territory.

The first deep water shipment of paper from the St. Helens Pulp and Paper Co. was made on January 8. The steamer Centauris carried 250 tons of St. Helens kraft for delivery on the eastern coast.

The New York City offices of the Zellerbach Paper Co. have been removed from 15 East Twenty-sixth St. to 386 Fourth Ave., where larger quarters are occupied and where the new telephone number is Madison Square 8120.

IMPORTANT FACTORS IN REDUCING OPERATING COSTS



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Iron Body Bronze Mounted
GATE VALVES

are aiding materially to solve the problem of more efficient and economical plant operation A direct comparison with any other valve designed for the same service will show conclusively why so many operating and plant executives specify and insist upon getting "Lunkenheimer"

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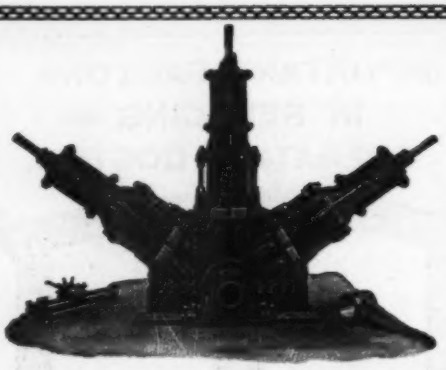
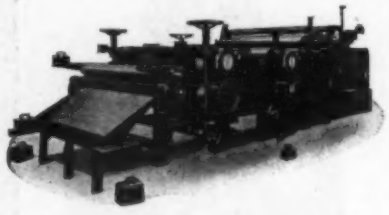


Standard Wood Pulp Grinder

Built in Three Sizes

Taking wood 24″, 30″ or 32″.
Bridge-trees—Are well proportioned.
Flanges—Made of steel, 40″ diameter.
Hydraulic Cylinders—Copper lined, 12″, 14″ or 16″ diameter. Valves are quick acting and leak proof.
Pillow Blocks—22″ length of bearing.
Pockets—Very heavy, designed particularly for free discharge of pulp, and fitted with our RENEWERS.
Service—Continuous distinctive service is always assured.



Rogers and Special Wet Machines

The standard machine for producing high density laps continuously.

When dry stock is not desired, use it as a labor saver—one man can run it and handle a tremendous daily capacity.

The Single Press may be used for the same purpose.

A true Glens Falls product, our new

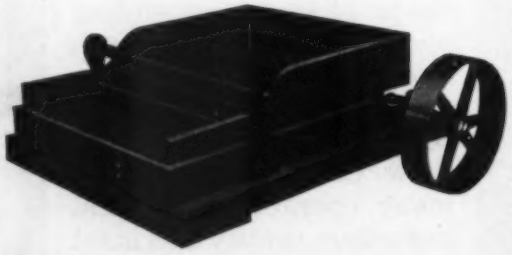
DEWATERER

(Patent pending)

Efficient Simple

This long sought machine will deliver chemical pulp from 15% to over 25%, as you may desire. It is entirely self contained, requiring no prethickener or vacuum pump. The flake form in which the stock is delivered is ideal for bleacher, beater or storage. Figures of our trial run are available at your request.

We have an attractive offer to make to you—you take no risk



Wells Undulating Knot and Sliver Screen

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Simplicity means low upkeep and low selling price.
And you can SEE it all the time.

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PULP AND PAPER MILL MACHINERY
GLENS FALLS MACHINE WORKS

GLENS FALLS, NEW YORK

See pages 342 to 343 in the 1927 Paper and Pulp Mill Catalogue

OHIO NEWS

Miami Valley Superintendents Meet at Hamilton

Never has a meeting of the Miami Valley Division of the Superintendents Association equaled that held at the Hotel Anthony Wayne, Hamilton, Ohio, Saturday, January 21, 1928. The usual dignity of these occasions was not lacking, but humorous innovations were introduced throughout the dinner and entertainment which provoked a great deal of mirth. The complimentary dinner, with its unique menu was sponsored by The Black Clawson Co. of Hamilton, Ohio and Shartle Brothers Machine Co., Middletown, Ohio, manufacturers of paper mill equipment. These companies also arranged the program of the evening, and those present were warm in their praises of the efforts of these people to make the occasion a most enjoyable one.

The Rod Mill

Mr. W. A. Goche of Shartle Brothers Machine Co. opened the meeting with a talk on the Rod Mill. The original idea of the rod mill was developed in Germany about thirty-five years ago, with pebbles instead of rods, and, of course, not as a part of paper mill work. Its purpose was grinding various materials in other industries. The rod mill is used in the paper industry for the crushing and refining of wood chips and performing many of the same functions as the beater. The apparatus consists of a drum of steel 1" thick, about 6 ft. in diameter and 12 ft. long, filled with steel shafting or rods 3" in diameter, turning one against another. Most of the rod mills installed at the present time are used on kraft. In one paper mill an installation replaced two beaters. It is claimed to save considerable power and do the work in less time.

Following Mr. Goche's talk, there was a general discussion on the subject, and the question, "What becomes of the metal that wears off the rods," was answered that it went the same way as the bars in a beater roll. In answer to another question regarding washing up for colors, it was explained that colors could not be run and that to use color it would be necessary to use a beater as an agitator just long enough to mix the color and no further beater action was necessary.

Message from the National Officers

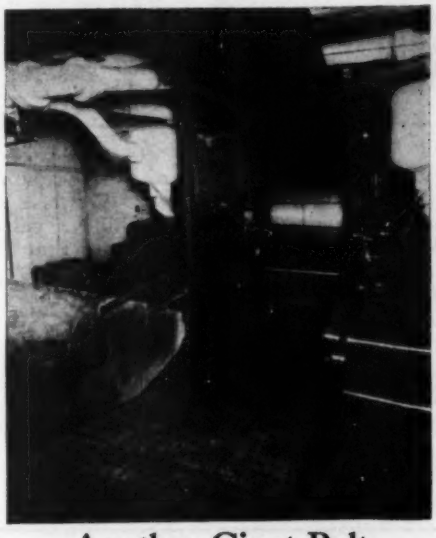
The honored guest of the evening was Fred J. Rooney, National President of the American Paper and Pulp Mill Superintendents Association. Mr. Rooney brought the following message from the National Officers:

"Friends, I bring to you the greetings of the National Officers, and, as your president, wish to congratulate and compliment you of the Miami Valley Division on the manner in which you are carrying on the work. As I have often said before, and I repeat it now, the more one puts into any work the more he gets out. Hence, it is because you men put so much real effort, hard work, into your division that results are forthcoming. You of this division are fortunately situated, as it is possible for you to hold frequent meetings. The more frequently meetings are held, say once a month at least, the greater benefits are sure to prevail not only to the division, its members and the entire Association, but to the Industry at large.

"An elaborate program either of business or entertainment is not necessary. The members of any division getting together with perhaps some one subject as a central thought, a leader to conduct the meeting, is all that is really necessary. The general discussion of problems, troubles and developments among a group of superintendents is bound to bring out thoughts of value, and while possibly nothing touching directly on your individual problem may be mentioned, still a train of thought may be started in your brain that will result in application of some plan that will bring about greater efficiency in your mill.

"The American Pulp and Paper Mill Superintendents Association stands for real efficiency in the paper industry. That is what we are continually trying to develop. By efficiency, I mean the greatest possible production of quality

RHOADS TANNATE WATERSHED LEATHER BELTING



Another Giant Belt

NOTHER paper mill, this time in Minnesota, installs a big Tannate Leather Belt.

144 Ft. long 72 inches wide. 3-ply
1500 H. P. 5,000 F. P. M. Installed Dec. 5, 1927

Four inches narrower and one less ply than the big 76-inch Tannate Belt installed in a New York state paper mill eight months ago. But this one is 44 feet longer and presents about 214 sq. ft. more pulley surface and was an equally difficult installation problem.

If you are contemplating the installation of a large drive belt put the problem up to the Rhoads Engineers.

They have the "know how." For the Rhoads Research Laboratory is no toy; but a well-equipped and ably-manned work-shop for determining what Tannate Leather Belting will actually do in comparison with other beltings. It has the pull.

The recommendations of the Rhoads Engineers are confidently backed by the firm with the Rhoads Service Guarantee on all Tannate Belts, small and large. You can depend on Tannate.

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ATLANTA .....80 Forsythe St., S. W.
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Factory and Tannery, Wilmington, Del.

If you are in the market for any used paper or pulp Mill machinery, write to us. We have at all times, good used paper machines, calender stacks, beaters, Jordans, Rotary and Flat Paper Cutters, Slitters & Rewinders, etc., etc. We also would be glad to have your list if you have any good used equipment for sale.

Address:-

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Paper and Pulp Mill Brokers
261 Broadway, New York City
Telephone—Barclay 8020
Our Motto: *"SERVICE FIRST"*

— FOR SALE —

MODERN PAPER MILL EQUIPMENT COMPLETE
- USED ONE MONTH -

FOURDRINIER PAPER MACHINE

Wire 96"x65'-0", three presses, twenty-nine dryers, two stacks calenders, two bowl reel, double drum winder and Marshall Drives.

Three 1200 lb. beaters, two large jordans, screens, stuff pumps, agitators, line shafting complete with pulleys and bearings.

PRICE RIGHT FOR QUICK SALE.

Address: Box 135
THE PAPER INDUSTRY

PAPER MILL MACHINERY

One 72" Pusey-Jones Fourdrinier Part. Takes wire 74" by 50 ft.
One 129" Hamblet duplex sheet cutter with layboy and six roll stand.
One 134" Pusey & Jones Uniform speed reel.
One 130" Moore & White four drum winder with slitter attachment.
Three Beloit triplex stuff pumps 10x20.
Two Pulp breakers, Noble & Wood, 1200 lbs.
Four beaters, Horne, 54" x 48" with wood tubs.

All above equipment in excellent condition, installed new in 1923.

51 Dryers 36" x 72" with frames, felt equipment.
One reel, two drum upright.
One 68" duplex sheet cutter, Downingtown.
One 72" Moore & White four drum winder.
Three Dayton beater rolls 66" x 60".
Two 72" Baker wet machines.
Two 3 pocket grinders with sones 54" x 27" direct connected to G. E. motor, 2200 volts, 60 cycles, 240 r.p.m.

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Apply giving full particulars to

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WANTED: A paper mill engineer. Must be university graduate with at least 5 years of paper and pulp mill experience. State experience, training, age and present salary. Address Box 134, The Paper Industry.

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Lessons in Paper Making
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The first twelve lessons of this series which has been running in The Paper Industry are now available, bound in a handy size, paper covered booklet. A good text book for beginners, experienced paper makers and mill executives.

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Starts Your Paper Machines Right. Write for Catalog "P.I"

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

paper at the lowest possible cost consistent with real efficiency. To eliminate all wastes, accidents, etc., maintain a contented, skilled, loyal organization with ideal working conditions is the superintendent's job. By doing this, and applying his knowledge through reading, observation, discussion of the paper industry with other superintendents at our association meetings, true efficiency will be gained.

Purpose of the Association—"To the mill owners and managers we say, 'Learn the real purpose of our association and you will insist on your superintendent being a member and you will also insist on his attendance at the meetings.' The Superintendents Association stands for honest co-operation between all departments, the Cost, Technical, etc. We do believe, however, that co-operation in the true sense must be team work. In other words, a superintendent should be consulted and advised of plans, purposes, etc. of cost or technical departments if the best results are to be obtained. The arbitrary settling of any plan or purpose cannot bring the best results. We superintendents on the other hand, must at all times be open-minded on plans and purposes put up to us by other departments and the management of our mi l.

"The American Pulp and Paper Mill Superintendents Association desires and intends to do constructive work in and for the paper industry at large. To the members here present, I wish to say your National officers and Executive Committee have given much thought and time to various plans as to what might be done of a constructive nature by our association for the industry at large. When such plan or plans shall be presented to the membership for approval, I ask that you give the same your favorable action, remembering that any plan offered is the result of much study and counsel from the very best men of our association, and not the result of any one man's snap judgment.

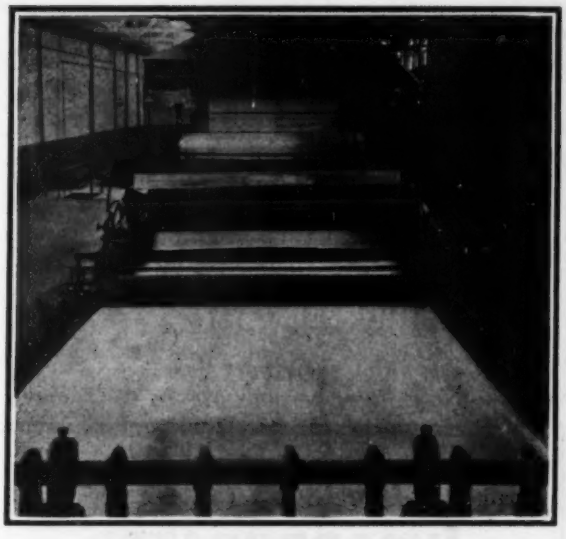
Plans for Annual Convention—"Our next annual convention is to be held at Pittfield, Mass., June 1 and 2, 1928. Pittsfield is, as you all know, beautifully situated in the Berkshires of Massachusetts in the center of papermaking, and it would seem an ideal location for our convention. The General Committee, headed by Mr. John J. White, of Holyoke, is already well under way with plans for the convention.

"What will make the convention a successful one? The largest possible attendance by the members and participation in the discussions by the members is the answer. Your National officers can only plan, the committees try to carry out the plans, but the success of our conventions and meetings, as well as the association itself, is entirely up to the membership. Our association is just like your mill. Management and superintendent may plan, but unless there is honest effort, interest and co-operation on the part of the entire personnel, your mill will not succeed to the greatest possible degree.

The Superintendents' Problems—"For you or I to be a successful superintendent, operating our mills at the greatest possible degree of efficiency, means we must not only know the paper business as to manufacturing, we must also know a lot about human nature. All sorts of men may be found in every mill. Jealousies, mill gossip, playing favorites, a feeling that men are not being treated fairly, are common causes of dissatisfaction. All these are problems for the superintendent who is the buffer, he must be loyal to the management, at the same time be fair to and keep his men contented.

"One of the best ways to learn human nature is through association with many different men. Enter into discussions with them, meet them socially. Our Superintendents Association presents just the opportunity for such meetings and discussions.

Benefits of the Association are far-reaching—"No group of men or association, regardless of its character, be it social or otherwise, can in my opinion ever succeed or be of great value to its members if the object is to benefit its members only. As I have often stated in the past, and repeat it now, The American Pulp and Paper Mill Superintendents Association is working for the benefit of the paper industry at large and not for its membership only. The officers and, I believe, a large majority if not all of the members of our association



3 Ways to increase production!

The capacity and production of a Fourdrinier machine can be increased by:

1—Speeding up the machine—

2—Keeping the machine running more continuously—

3—Avoiding defects in the paper and preventing spoilage.

In each case, the durability and dependability of the Fourdrinier Wire is of utmost importance.

For faster operation, strength is required; to reduce waste, uniformity is essential; to assure continuous production, the wire must be tough and durable.

These are the qualities that have made Tyler Fourdrinier Wires the choice of manufacturers of all kinds of paper.

Tyler Fourdrinier Wires run straight and true, assuring a well-formed sheet, quick de-watering, freedom from wire marks, feathery edges and other defects. They give long service under increased speeds.

If you want to increase the capacity of your machines, it will pay you to try Tyler Fourdrinier Wires.

Supplied in all widths up to and including 250 inches

The W. S. TYLER COMPANY, *Cleveland, O.*

Backing Wire — Tyler Fourdrinier Wire — Corduroy Cloth

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Analysis, Design, Construction, Operation Efficiency

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realize that anything that is of real benefit to the paper industry at large is in turn going to be a benefit to every member of this association. Those mill owners and managers who object to their superintendents being members of our association and attending our meetings will some day, I am sure, see their error. If they do not, I question how long they will be active in the paper industry.

"There has come to me in the past criticism in reference to some forms of entertainment indulged in at some of our meetings. My answer to such criticisms is that regardless of where one goes, what he is most looking for, he will find. If the superintendent of any mill will come to any of our meetings with the honest desire to get information, he will find it. As to entertainment, our association does plan to offer proper and sufficient entertainment to satisfy the members. If some superintendent in attendance at a meeting seeks and finds some form of entertainment not sponsored by the association, only that superintendent should be criticised, not the association.

"Let us go on then with the work of our association and at all times so conduct ourselves at our meetings that there can be no cause for criticism of any nature.

"The possibilities of what our association may accomplish are amazing. We are on the right track. You men of the Miami Valley Division are helping wonderfully—keep on."

Plan For February Superintendents Meeting

A very interesting program is being prepared for the meeting of the Miami Division Superintendents Association, to be held February 18, 1928, at the Hotel Manchester in Middletown, O. Mr. Fulton of the Fulton Engineering Co. will show several reels of motion pictures taken by him on his recent visit to Europe. These show European mills in operation and very good views of their equipment.

Instead of the usual speaker, there will be a "Question Box." This will permit a discussion of the difficulties in the various departments of the paper mill. These questions are to be mailed to H. H. Latimer, Beckett Paper Co., Hamilton, O., and he will arrange to have them answered. Bring your troubles to the meeting and profit by the experience of others. That is the purpose of the association, to give others the benefit of past experiences, and the paper and pulp industry in general will profit as well as the individual superintendent.

The Liberty Paper Board Company, organized to take over the plant of the Hartje Paper Mfg. Co., of Steubenville, has completed one unit of the factory and production is scheduled to start Feb. 13. A second machine is to be completed within eight weeks and a third machine in about 12 weeks. The plans for the plant call for four machines and the last unit is now being placed in position. It is planned to have a capacity of 120 tons of paper board and it is believed that the capacity will be reached by the middle of the present year. The plant is expected to employ about 250 men.

Howard L. Cheney, head of the Cheney Pulp and Paper Co., Franklin, O., has recently been elected director of the Franklin National Bank of Franklin, O., an old and strong financial institution of the Miami Valley.

The Biggs Boiler Works Co., at Akron, Ohio, reports considerable activity in rotary bleaching boilers. This company has recently received an order from the Maizwood Products Corp., Chicago, Ill., for one 14 ft. Globe Rotary Bleaching Boiler, and is also building for the Management Engineering & Development Co. at Dayton, Ohio, six 14 ft. Globes, four for Sylvia, N. C., and two for Knoxville, Tenn. The Bedford Pulp and Paper Co. at Richmond, Va., is having a new shell built for one of its 14 ft. Globe Rotary Bleaching Boilers.

At a meeting of the Philadelphia Quartz Co., January 24, 1928, the president, Wm. T. Elkinston, announced the appointment of J. Passmore Elkinston as sales director, Edwin A. Russell as salesmanager, and Carl F. Wolcott as field assistant sales manager.

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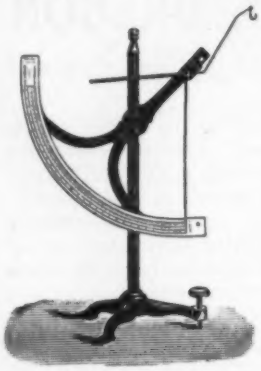

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Uniformity of beating means better paper.

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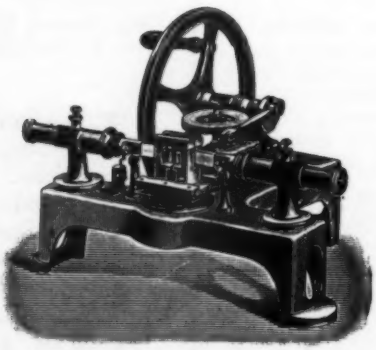
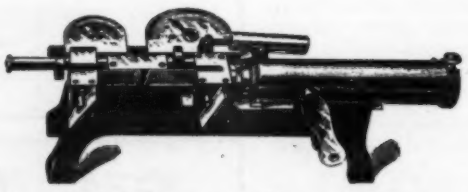
Carried in stock—1/1000 of an inch for Boards, 1/2000 of an inch for Paper.



Schopper Folding Tester
The folding test has become standard for bonds, ledgers, and Kraft papers.

Schopper Strength and Stretch Tester

Small Piece Pocket Paper Scale
By weighing a piece 2 in. by 4 in., gives basis weight 25x38, 24x36, 22x34, 500 sheets.



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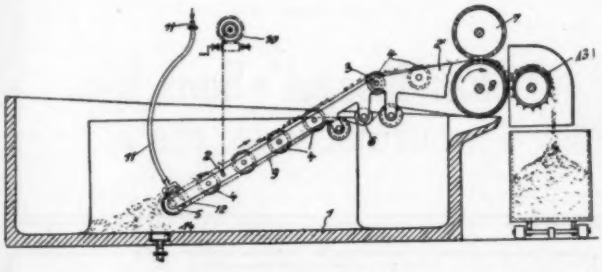
Technical Developments in the Paper Industry

Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Removing Pulp from Beaters

A NEW device for removing pulp from beaters without disturbing the circulation of the pulp in the trough is shown in the accompanying illustration. A frame is arranged over a channel (1) of the beater. A portion of the frame (2) is rotatable about a crank (3). Solid guide rollers (4) are located in the portion (2), as well as a perforated spray roller (5) at its free end and a tension roller (6) at its fixed end as well as the squeeze rollers (7) and (8). An endless



wire screen (9) runs over the rollers (4), (5) and (6) and the drum (8) and this screen is moved in the direction of the arrow by the rotation of the squeeze roll (8). The wire is chosen in such a manner that it fills the width of the channel (1) of the beater. The rotatable portion (2) can be lifted or lowered by means of a wire rope or a chain by means of the hoisting apparatus or windlass (10). The pipe (11) is used for introducing water under pressure into the spray roller (6). A spray box (12) is also shown, which is also fed from the pipe (11) with water under pressure. The stream of water washes away the fibers, before they reach the space between the guide roller (5) and the wire screen (9). The latter can be inserted quite deeply into the mixture of fiber and water. The mixture is continuous carried through the screen, lifted out of the trough and carried between the squeeze rolls (7) and (8). The squeezed material is removed by the wheel (13) which acts as a doctor in stripping the material off the screen as it revolves about the roll (8).

This device will remove all of the pulp from the beater trough even when it contains but little of the pulp and water mixture. This is accomplished by building a conduit or channel (14) in the bottom of the trough which is perforated on top. The water which is sprayed under compression at this point lifts the pulp mass so high that it reaches the moving wire and is removed. J. P. Bemberg A. G. German Patent No. 452,106.

Corrosion Phenomena in the Sulphate Mill

THE investigation was instituted in an attempt to explain the rather rapid localized attack on heating tubes which were used for heating the digestion liquor. The principal cause of the corrosion seemed to be too high heating of the tubes, but the following conditions were also found to exist and are of some importance. These were, irregular circulation of the digestion liquor, varied quantities of gas (both in the rotary and stationary digesters), and insufficient dimensioning of the heating surface of the tubes in ratio to the quantity of liquor that is being heated. One should not fall into the error of trying to force the transmission of heat by using steam of higher temperatures. In certain instances the author found that superheated steam was being used for this purpose. Shorter heating periods are preferable.

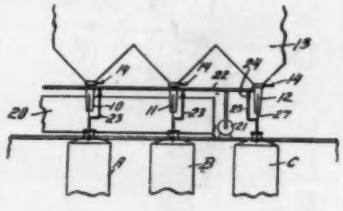
Possible means of preventing the corrosion of the tubes are as follows: The first precaution to take is to avoid too high temperatures. High temperatures are undoubtedly the main cause of direct, localized corrosion, as well as increased corrosion over a larger surface area. Breaking off the circulation of the liquor through the tubes results in overheating. The material of the tubes is of subordinate importance compared with the temperature. The carbon and the silicon content should be as low as possible. Alloys of the rust-proof type, containing, for example, thirteen per cent of chromium, did not yield any advantageous results. Laboratory experiments have shown that the opposite is true.

Steel with a high carbon is more apt to corrode less than these alloy steels. A relatively, marked regional corrosion of the tubes may be held to possess this advantage in that the gases formed will tend to protect the metal of the digester proper from being attacked. The ordinary inclusion of slag in the metal of the tubes will cause no corrosive disturbances. The hollows, which remain after the slag has been dissolved out, do not yield any opportunity for the formation of intensified heat centers.

As far as the surface of the tubes is concerned, a perfectly smooth, polished surface appears to be ideal. Nevertheless, it is advisable in practical operations to cause the formation of small roughened nodules or the like on the surface of the tubes. The reason for this is that bubbles of gas can be deposited and held more easily by the smooth than by the rough surface. C. Benedicks, Svensk Papp. tid., volume 30, year 1927, pages 133ff.

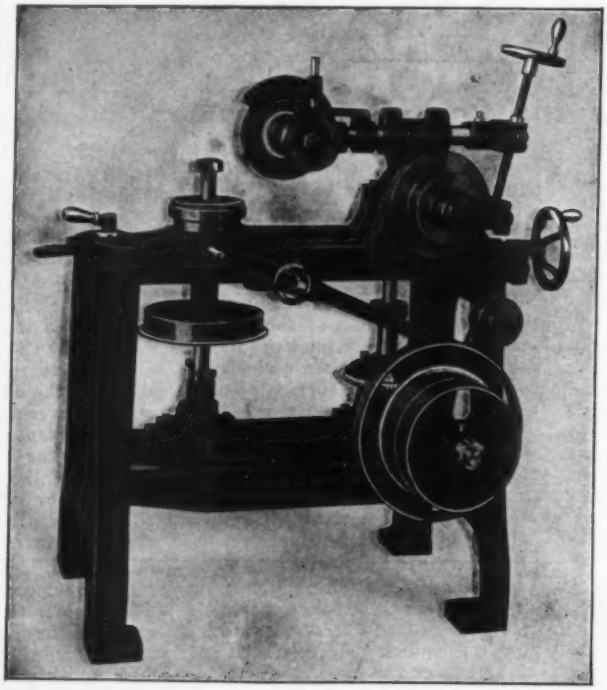
Charging Pulp Digesters

A STREAM of solvent liquor is introduced into the digester under high pressure. The material which is to be treated is introduced simultaneously with the liquor. Thus the force of the liquor stream is used to pack the material to be digested in the digester. E. Olsson, West Point, Va. United States Patent No. 1,653,307.



Mechanism of Rosin Sizing of Paper

THE various theories which have been advanced in the attempt to explain the exact character of rosin sizing, are reviewed and discussed. It is considered possible that if, as suggested by Schwalbe, sizing is due to rosin particles coated with aluminum hydroxide, the action of heat under suitable conditions will cause these rosin particles to coalesce and thus give a continuous film while still retaining a protective coating of alumina. Some support for this theory is obtained from the observation that sized fibers, when mounted in glycerin and immediately examined microscopically, expand slowly, whereas the resinous coating retains its original dimensions, later detaching itself and aggregating in coarse lumps, which appear to lie loosely among the fibers. Comparative laboratory experiments (using four per cent of rosin on the weight of



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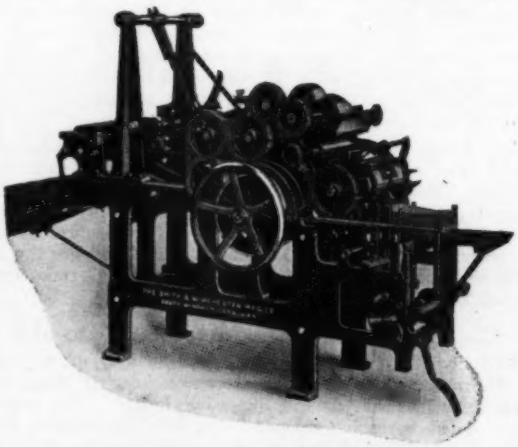
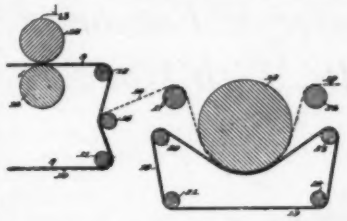


Paper Bag Making Machinery

pulp) show that rosin sizing causes a considerable loss of strength (46.2 per cent in the experiments cited). J. M. Arnot, Proceedings of the Technical Section Papermakers' Association, volume 6, pages 95 to 105.

Papermaking Machine

UNITED STATES Patent No. 1,654,962, is concerned with a papermaking machine, which is shown in diagrammatic form in the accompanying illustration. The apparatus consists of a number of spaced felt-carrying rolls and a pickup felt which is trained about the rolls and carries a moist web of paper pulp. Means are provided for effecting the separation of the web from the felt in the operation of the machine. These means comprise a single roller spaced from the felt carrying rolls. This roll is seen at (18) and the felt carrying rolls at (20), (21), (22), and (23). A. E. Cofrin.



Preliminary Alkaline Treatment in Chlorine Digestion Process

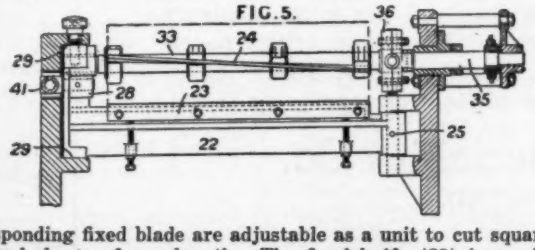
AN INTERESTING article has been published by I. Mutti and M. Venturi in Annali Chimici Appli., 1927, volume 17, pages 391-401 on the influence of the preliminary treatment of the pulpwood and the like with alkalis and of the time of chlorination in obtaining pulp by the chlorine process. When a high yield is desired in the manufacture of pulp by the chlorine process, it is recommended that a one per cent solution of sodium hydroxide is used in the preliminary treatment of the material. When the purity of the product is of greater importance than the yield, that is when a purer product with a lower yield is desired, then it is necessary to carry out the preliminary treatment with the aid of a four per cent solution of sodium hydroxide.

In the former case, the action of the chlorine should not be prolonged, in order that the resulting product may not suffer injury. In the latter case, however, no such injury results, and the products obtained contain up to eighty-six per cent of alphacellulose and are well suited to the manufacture of rayon. Increase of the concentration of the sodium hydroxide solution used in the preliminary treatment from five to ten per cent diminishes the final yield without improving the quality of the pulp obtained.

Rotary Blade Machines for Cutting Paper Webs

THE purpose of this machine, patented in British Patent No. 277,268, is to cut a web of paper into sheets. A rotary blade is employed for this purpose. This and a corresponding fixed blade are adjustable as a unit to cut square-edged sheets of any length. The fixed knife (23) is carried on a bar (22), which is pivoted on a pin (25) and terminating in a slide (28) carrying a bearing for the shaft (33) of the rotary cutter (24). A power shaft (35) is connected to the shaft (33) by a universal joint (36). The slide (28) is adjusted along guides (29) by means of a screw (41). The web is fed by friction rollers and the sheets are delivered to a conveyer. (S. G. Bowles and P. R. Fender.)

FIG. 5.



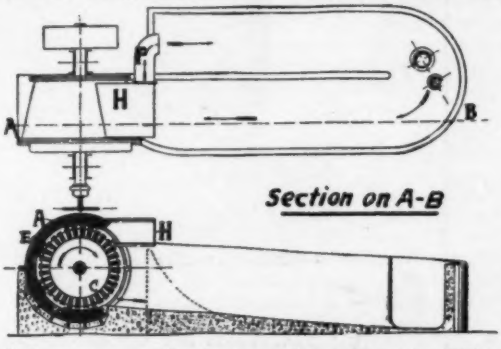
Waterproof Paper or Board

WATERPROOF paper or pasteboard is produced by disintegrating a paper stock of waste wax paper, dispersing the wax constituent, fixing the dispersed material on the paper fibers and then running off on a papermaking machine. The waste wax paper, together, if desired, with sulphite pulp, mixed papers or other paper stock, is heated to soften or melt the wax, and is then beaten, rosin or other waterproofing material being added, if desired. Sodium silicate, preferably heated, is then added to disperse the waterproofing material, and the stock is then cooled and alum is added to produce a slightly acid reaction and to fix the waterproofing material on the fibers.

In one example, seventy parts of waste paraffin paper and thirty parts of other fiber are placed in a beater, heated to approximately 170 degrees F. and then beaten for half an hour. From five to twenty parts of rosin are added and disseminated through the stock and sufficient sodium silicate of about 42 degrees Be. concentration at a temperature of 210 degrees F. is added to produce the desired dispersion. After beating for approximately thirty minutes, water is added to cool the stock down to 120 degrees F., then thirty to forty per cent of alum is added to produce a slightly acid reaction and the stock is run off on a paper machine, which is provided with dryers and calender rolls maintained above the temperature of the waterproofing material. Bennett Inc. British Patent No. 280,083.

A Conical Beater

THE conical beater is used for the purpose of increasing the productivity of the beating apparatus and also in order to save space. The location of the outlet through which the processed pulp is removed, and of the bedplate, allow the performance of the operation of beating to be carried out without



there being any necessity for providing a device for lifting the material on to the beater roll. As may be seen from the accompanying illustration, the conical beater consists of a conical drum (beater roll) (C), which rotates within the space (E) which is provided with four to eight bedplates. The bedplates are arranged parallel to the axis of the drum, whose knives are at a certain angle to the axis. A set of upper and lower beater knives is arranged as in the ordinary beater, and the knives that are located in between are somewhat removed from one another.

The distance between the knives is necessary for the purpose of allowing the fibers which are collected and held between the knives to be removed and carried along to the next set of knives and thus the mass of paper stock is beaten in each successive set of knives.

The method in which the conical beater works is as follows: The stock is taken up by the knives, beaten, and then reaches the box (H) and is carried from this box through the tube (P) into the other half of the beater, in which a run-off device is arranged, so that as the mass falls it again flows toward the knives of the beater roll or drum. The operation of the conical beater differs from that of the ordinary beater in no appreciable manner, but it is claimed that the production of the conical beater is greater than that of the ordinary beater.

We assume, for example, a beater roll whose average diameter and whose rotary speed and weight are the same as that of the beater roll in an ordinary beater. The ordinary beater has two sets of knives while the conical beater has six sets, and the number of knives and their length are the same per set. Hence, when the knife pressure remains the same, the productivity of the conical beater must be three times as

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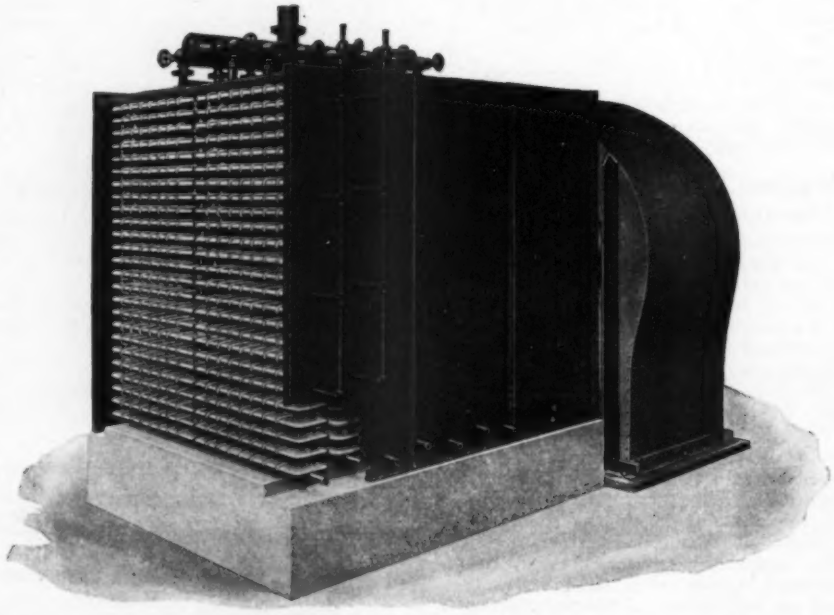

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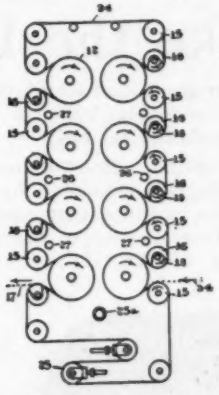
much as that of the ordinary beater, and it must, furthermore, be pointed out that three times the energy used in the ordinary beater must not be expended in the conical beater in rotating the beater roll, inasmuch as only one such roll is provided. G. Gasucha. Der Papierfabrikant, 1927, pages 767-8.

Dryer Section of Papermaking Machine



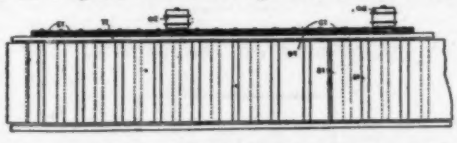
THE illustration shows the arrangement of dryers in the dry end of a papermaking machine, as patented by H. D. Bean in United States Patent No. 1,656,853. A number of heated dryer rolls are rotatably mounted in a frame as well as a series of suction rolls. These suction rolls also rotate. The paper web is carried by means of an endless felt around the heated rolls and the suction rolls. It is claimed that the drying of the paper web is materially facilitated in this way.

Treating Waste Paper for Remanufacture

IN THE recovery of pulp, particularly wood pulp from printed paper, and the removal of the ink contained in the latter, the material in a wet or dry state is reduced to small pieces, and then boiled in a solution of soap containing one part per 100 with constant stirring and skimming, the boiling being continued until the scum has become nearly white. The material is then rinsed with ordinary water pulped in a beater, then boiled in a solution of weak alkali, preferably sodium carbonate containing one part per 1000, hot water being added during the boiling to dilute the solution at the end of the boiling to one part in 1,500 with stirring and skimming, the operation being continued until the scum is white. The product is finally rinsed with ordinary water. L. Grenaudier. British Patent No. 279,516.

Drive for Papermaking Machines

THE dry end of the papermaking machine is composed of two horizontal series of dryer cylinders which are arranged in zigzag relationship throughout the length of the machine. Each of these cylinders is supported in the usual manner on a spindle and these spindles are mounted in the



frame of the machine and rotated in the bearing. Toothed gear wheels are secured to each of the spindles and idler toothed gear wheels between each pair of upper cylinder driving gear wheels. Idler toothed geared wheels are also located between each pair of lower cylinder driving geared wheels. A number of electrically operated driving elements are located at spaced intervals throughout the length of the machine, each element being adapted to drive an upper geared wheel and a lower geared wheel. Balancing idler wheels are located at spaced intervals throughout the length of the machine, each balancing idler being adapted to gear with one upper and one lower gear wheel. A. N. Russell, Montreal, Quebec, Canada. United States Patent No. 1,655,511.

Making Chemical Pulp

CHEMICAL pulp, such as sodium or calcium bisulphite pulp, is treated with an alkaline solution, such as caustic soda, sodium carbonate, sodium carbonate and caustic soda, or sodium sulphide of concentration and temperature such as to effect purification but insufficient to effect mercerization. The idea is to produce a product which is rich in alphacellulose and suitable for the production of cellulose esters or ethers or of high grade paper. The pulp may be treated with an oxidizing or bleaching liquor before the alkali treatment, and is treated with the usual bleach liquor after the alkali treatment, followed by a "superbleaching" with chlorine water.

The pulp is fed from a storage tank into a regulating tank in which water is added. Thence the pulp passes to thickeners, the thickened pulp being discharged to a mixer which receives alkali from another tank provided with a heating arrangement. The alkali solution is stored in a special tank and then fed from this tank through a smaller tank to a "doser" which regulates the supply to the heater tank. The pulp from the mixer is sent to the thickeners and the thickened pulp is then discharged to cooking tanks in which the digestion is effected. The steam that is fed into the various cooking tanks is controlled thermostatically. After digestion, the pulp is removed into a washer.

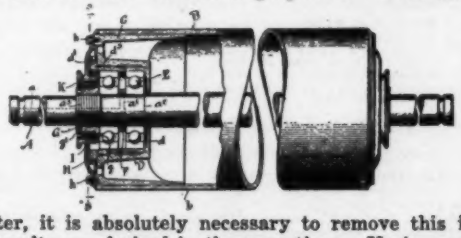
The pulp may be freed from traces of alkali by the addition of a bisulphite or sulphurous acid, and is then treated with bleaching powder solution, with the addition of a little caustic soda, if desired, to retard the bleaching action, and lessen the danger of weakening the fiber. The washed or unwashed bleached fiber may be "superbleached" by means of chlorine water, and is finally treated with a little bisulphite liquor to remove the remaining chlorine. The pulp is then fed to riffles to remove heavy impurities and to a classifier to remove more or less the broken or shorter fibers which are suitable for the production of cellulose derivatives. Brown Co. British Patent No. 278,767.

Beater

A SERIES of knife bars are secured and spaced about the periphery of the beater roll, and space bars are provided between the knife bars. Anchoring straps are passed under the knife bars and over the space bars and are secured against the latter. This fixed the space bars firmly in position. W. Werner, assignor, The Noble & Wood Machine Co. United States Patent No. 1,656,876.

Coloring of Mechanical Wood and Paper Containing It

WET mechanical wood ground from fir wood becomes scarcely colored at all after being stored for several weeks. This is quite different with pine wood. The color of the latter is changed from a greenish white to a dirty red. The tendency for the wood to color apparently depends among other factors on the time of the year in which the wood was cut. Wood which is cut while vegetable life is at rest is to be preferred. Water which contains iron, that is, iron oxide, as well as iron machine parts enter into reaction with the tannic acid whichis contained in the wood, that is the common, so-called ink reaction. Traces of iron are sufficient to bring about a distinct bluish coloration of the material. This color is often a dirty green as well. When the iron content of the water used in the manufacturing operation is 0.2 milligram



per liter, it is absolutely necessary to remove this iron, if good results are desired in the operations. Various methods which can be used for the removal of the iron content of water are described in the original article. The yellowing of paper, that is, of finished paper, is also ascribed to the reaction that takes place between the iron in the water and the resins or fats in the wood. In other words, this coloring of paper is due to the formation of iron soaps. F. Hoyer. Papp. och traevarutidskr. f. Finland, 1927, numbers 13 and 14.

Breast Roll for Paper Machines

THE breast roll is mounted on a stationary shaft so that it can be rotated. The weight of the shell only is thrown against the bearings in case of thrust or impact against these bearings resulting from oscillations of the shaft caused by

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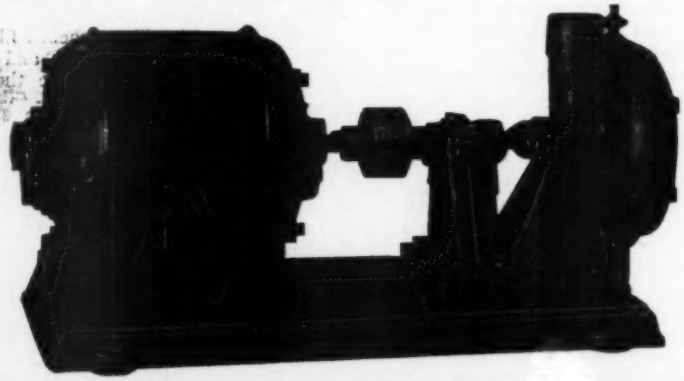

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Illustrating the positive oiling system which never fails—that produces almost frictionless oil film. Furnished in all styles of rigid and ball and socket mountings. The split construction of our bearing is an unsurpassed blessing for maintenance men.

Freedom from lubrication troubles assured.

No other Anti-friction Bearing on the market will give you as high sustained efficiency and endurance as

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The study of oil films has progressed to the point where the loads carried and speeds of operation, formerly thought impossible, are now proven facts.

A patented feed and distributing system found only in this design establishes and maintains the perfect oil film.

It actually floats the shaft free from metallic contact, and there is always a steady smooth uninterrupted flow of power without wear.

The "Cleveland Type" Oil Film Bearing is constructed along original lines—the result of years of experience and exhaustive research to produce the "perfect bearing" for power transmission.

"Cleveland Type" Oil Film Bearings are designed for all styles of rigid and ball and socket mountings adjustable four ways. They may be successfully applied to every class of service—low, medium, high speed, continuous, and plain or water-cooled.

Complete information is available to every Pulp and Paper man interested in scientific lubrication. *Write for literature.*

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Manufacturer of
Power Transmission Equipment for Belt, Rope, Gear and Agitator Drives.
General Office & Works, 6400 Breakwater Ave. NW, Cleveland, Ohio.

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Dependable Economical

World Wide Distribution
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Stephenson Mfg. Co.
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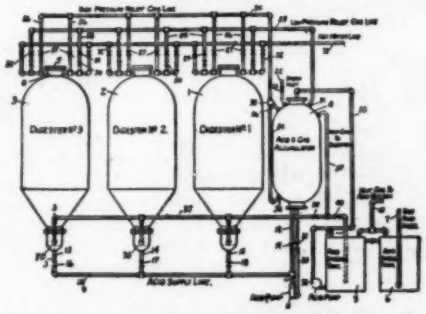
the shaking mechanism employed in paper machines. The means of accomplishing this weight distribution consists of axially bored or hollow heads which are fixed in the ends of the roll. Annular housing are removably inserted in these heads. These housing confine annular anti-friction bearings comprised of concentric race rings and interposed rolling elements. The bearings are provided with cover plates through which the shaft extends. Means are also provided for preventing endwise movement of the bearings on the shaft. W. H. Millspaugh, assignor. The Paper and Textile Machinery Co., Sandusky, O. United States Patent No. 1,653,817.

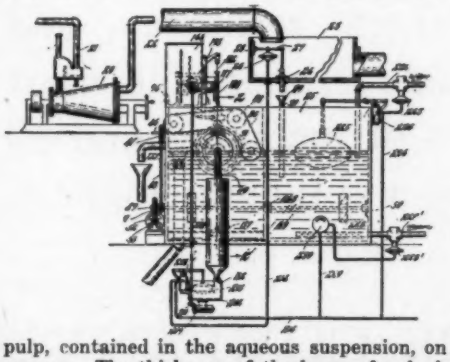
Treating Pulpwood to Produce Pulp

THE wood is placed in closed chambers of the type shown in the accompanying illustration. The digestion is carried out in one of these chambers with acid under heat and pressure. Low pressure gas is thus liberated from the digester over a certain definite period of time. Then high pressure gas is set free during a second period of time following the first. These gases are made to come into contact with acid liquor under pressure. The liquor absorbs the gases and at the same time the temperature of the liquor is increased. The heated liquor is then introduced into the second digesting chamber for digesting the material that is contained in it. A. F. Richter and F. A. Augsbury, assignors, Stebbins Engineering & Manufacturing Co., Watertown, N. Y. United States Patent No. 1,653,416.



Testing Pulp Suspensions

THE slowness of aqueous pulp is tested in the apparatus, which is shown in the accompanying illustration and which is patented in United States Patent No. 1,653,125. The principle of the testing consists in the formation of a layer of solid pulp, contained in the aqueous suspension, on a foraminous screen. The thickness of the layer of pulp is noted and the slowness of the pulp is determined therefrom. M. O. Schur, assignor, Brown Co., Berlin, N. H.



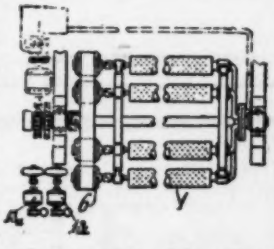
The Chemical Action of Sulphur Dioxide on the Organic Matter in Sulphite Waste Liquors

THE investigation starts with a review of the methods which have been recommended for analyzing waste liquor. It is indicated that the free sulphurous acid can be accurately determined by titration with iodine in a 0.02 normal acid solution. In determining the "sulphite lime," it is recommended that the free sulphurous acid is boiled away and then the titration is effected with the aid of iodine. The organic substances, that are contained in the sulphite waste liquors, absorb sulphurous acid. This absorption is greater, the more concentrated the solution in sulphurous acid and lime, (carbonate). The absorption of sulphurous acid is a time reaction, which lasts until a state of equilibrium sets in. The reaction is reversible. At a temperature of 100 degrees C. less sulphur dioxide or sulphurous acid is absorbed than at ordinary temperatures. The absorbed sulphurous acid is loosely combined. The substances in the sulphite waste liquors, which cannot be salted out, are the cause of the consumption of sulphurous acid. A large portion of the sulphur is precipitated as sulphate during the iodine titration of the sulphite waste liquor, if the acids, that are formed during this operation, are neutralized with the aid of carbonates or bicarbonates. The reasons why the contention, that the loosely combined sulphurous acid is present as a sulphurous acid ester, are also stated.

The author also points out that it is possible to explain the action of liquor usel in the digestion process, which liquor is made by adding fresh liquor to used liquor. This mixed liquor contains small amounts of organic substances and absorbs sulphur dioxide from the fresh liquor, forming reversible compounds with the sulphurous acid. The decreasing concentration of sulphurous acid in the digestion liquor during the progress of digestion causes the sulphurous acid that is combined with the organic substances to be set free and to be thus rendered available for digestion. D. E. Oeman, Cellulosechemie, 1927, pages 117-126.

Paper Web Winding Apparatus

GERMAN Patent No. 448,774, issued to W. Okuura, is concerned with an apparatus for winding paper webs which consists of a number of winding rolls located on a single rotatable frame. The purpose of this invention is to provide an automatic electrical speed regulating device, by means of which the speed of the rolls is increased or diminished in accordance with the increase or decrease of the tension on the paper that is being wound. Hence the tension on the paper web remains always the same. This regulation of the speed is effected by means of a regulating motor by means of which it is very easy to control the rate at which the paper is being wound. Hence, mechanical devices which are not sensitive enough for regulating the speed of winding, are not required.



According to the accompanying illustration, each of the roll (1) is connected with an induction motor (6) whose rotor is automatically and electrically connected with the stator of a regulating motor (13a). In a variation the stator of each second winding motor is connected with the stator of a regulating motor, so that two regulating motors act alternately with one winding motor.

Suit Against Brown Paper Co. Dismissed

The suit brought against the L. L. Brown Paper Co. of Adams, Mass., by the Byron Weston Co. of Dalton, Mass., charging infringement of a patent covering its process of making flexible hinge paper, has been terminated by the withdrawal of an appeal from the decision of the United States District Court at Boston, which found in favor of the L. L. Brown Paper Co.

Following the decree of Judge Morton, who ruled that the Brown Paper Co.'s improved method of making a flexible hinge was not an infringement of the plaintiff's method, the Byron Weston Co. filed an appeal to the Circuit Court of Appeals and at the same time made a request for a re-hearing by Judge Morton, which was granted. The Judge, however, declined to alter his original opinion which now becomes final by reason of the withdrawal of the appeal. Prior to the institution of the suit, the improved process used by the L. L. Brown Paper Co. in making its Hinge was fully covered by letters patent.

An Important Announcement!

We wish to announce that we have recently sold all manufacturing and sales rights on the Semco Automatic Receiver Pump in:

The United States and American possessions, also Cuba and Mexico,
to: **W. B. Connor Inc., New York City.**

The Dominion of Canada,
to: **Canadian Ingersoll-Rand Co., Montreal, Quebec, Canada.**

Both W. B. Connor Inc., and the Canadian Ingersoll-Rand Co., have large forces of sales representatives who are able to cover the paper manufacturing field thoroughly and to give your individual conditions an accurate and personal survey.

They will be greatly interested in receiving your inquiries.

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REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

PACIFIC SALES COMPANY, Security Bldg., Portland, Ore.

New York, February 1, 1928.

ACTIVITY in the paper industry is broadening gradually, according to reports. Consumers, converters and jobbers are manifesting more buying interest and are placing orders with greater frequency and for larger amounts of paper of various kinds, as their needs arise. It is quite evident that current demand is of very healthy character, being confined almost solely to the actual requirements of buyers, and, in fact, the paper market situation in its entirety exhibits a decidedly healthy tone as well as considerable promise for the future. There is ample proof visible that users of paper are carrying comparatively small stocks, and that paper merchants are absorbing supplies from mills in a reserved manner, generally waiting to place orders until they have commitments to cover. The business outlook generally is bright; there seems every reason to believe that manufacturing throughout the country will keep on its fairly high level over the next few months, that retail movement of merchandise will assume wider proportions and that financial conditions will remain sound. In other words, if business in various other lines develops in the way and in the volume that seems assured, it naturally follows that demand for paper will be good because consumption of paper of all kinds will be heavy.

The market has shown increasing life since the holiday and inventory period. There is an all around improved sentiment in the paper trade, created by better buying interest among consuming customers and broader buying. The price tone in most classes of paper is steadier. Manufacturers are adhering with greater firmness to the quotations issued, and seem resolved to secure the prices asked for their product, at the same time contending that ruling market prices of paper are very reasonable, so much so that in some instances paper is being marketed at too low prices in relation to the prevailing cost of production. The argument is advanced, and seemingly rightfully so, that if changes in market quotations occur over the next several months they will be in an upward direction. Obviously, this sentiment has a salutary influence on the market which is visible on every hand.

Production of paper and board in the United States during November recorded a slight decline as compared with the preceding month, according to the monthly statistical summary compiled and issued by the American Paper and Pulp Ass'n. During November a total of 558,061 net tons of paper and board was produced in this country, against 571,404 tons in October, representing a decrease of some 2 per cent, the association reports. The sharpest individual decline in production was in felt and building papers which fell off 17 per cent as contrasted with October, while other grades recorded decreases of from 1 to 7 per cent. The November production also compared with a total output of 567,060 tons in September, 591,593 tons in August, 513,459 tons in July, 560,342 tons in June, 543,592 tons in May, 558,412 tons in April, 596,448 tons in March, 525,896 tons in February, and 515,603 tons in January. Shipments from mills during November aggregated 555,143 tons of all grades, against 577,745 tons in the preceding month, while stocks at mills at the end of November totaled 259,728 tons, against 258,231 tons a month earlier.

Production of newsprint paper on the North American Continent kept to a high level during December last, according to the monthly report of the News Print Service Bureau. Production in the United States amounted to 119,312 tons, and shipments from mills to 123,883 tons, and in Canada 181,600 tons and shipments 181,439 tons, making a total U. S. and Canadian production of 300,912 tons and shipments of 305,322 tons. During December, 17,589 tons of newsprint were made in Newfoundland and 1,255 tons in Mexico, so that the total North American production for the month amounted to 319,756 tons. Adding to the production of the regular newsprint mills reporting monthly throughout the year, the small amount made by mills whose produce is chiefly other grades of paper, the total North American output of newsprint in 1927 was 3,789,433 tons, of which 2,086,949 tons was made in Canada, 1,485,495 tons in the United States, 202,852 tons in Newfoundland and 14,137 tons in Mexico. The Canadian production was 11 per cent more than in 1926, that in the United States 12 per cent less, with a gain of 5 per cent in Mexico and 9 per cent in Newfoundland, making a total net increase of 23,595 tons, or six-tenths of one per cent.

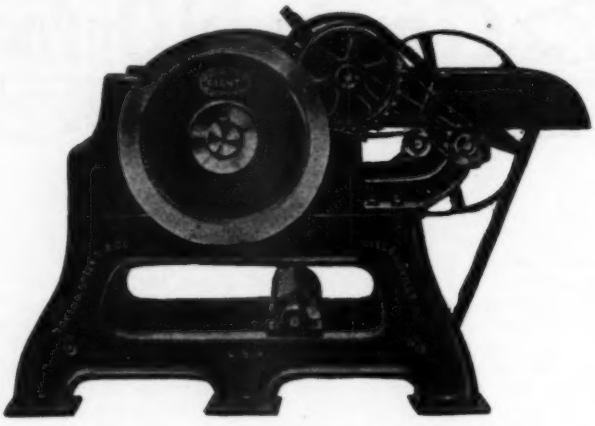
During December last the Canadian newsprint mills operated at 82.2 per cent of rated capacity and the United States mills at 80.9 per cent. Stocks of newsprint at Canadian mills totaled 38,171 tons at the end of December and at United States mills 20,877 tons, making a combined total of 58,994 tons which was equivalent to 4.2 days' average production.

The total production of paper board in the United States in 1927 was 2,478,125 net tons, showing a decline from the 2,528,911 tons produced in 1926, according to the report of the U. S. Department of Commerce. Board mills of the country produced at an average of 84.0 per cent of their rated capacity last year, against 85.7 per cent in the preceding year. Production in the final month of last year was 191,213 tons, compared with 212,319 tons in November. Orders received by manufacturers in December called for a total of 178,576 tons of board, contrasted with 183,576 tons in the preceding month, and unfilled orders held by mills at the end of December were for 74,729 tons, against 76,471 tons a month earlier. Shipments of board from mills during December aggregated 181,787 tons, compared with 212,375 tons in November, while stocks of board at mills at the end of 1927 totaled 47,386 tons, contrasted with 41,317 tons a month previously. Board mills consumed a total of 177,366 tons of waste paper in December, against 202,646 tons in November, and had stocks on hand totaling 144,714 tons at the end of December, compared with 133,184 tons a month before.

Employment in November decreased slightly in the paper and pulp industry of the United States, according to the Bureau of Labor Statistics of the Department of Labor. Reports received from 214 paper and pulp mills which gave their October employment at 58,826, decreasing in November to 58,713, a decline of 0.2 per cent. The payrolls in these mills also decreased from $1,562,272 in October to $1,554,529 in November, a decrease of 0.5 per cent.

The movement of newsprint paper is steady, and consumption—judging from the tonnage consumed in the important center of New York City—was heavy in January. Demand for wrapping paper has expanded and prices are well maintained; reports say that most mills are covered a good ways ahead in orders. Tissue paper is enjoying fair market activity and quotations are steady, and the book paper movement keeps up in sizable volume and mills quote firm prices. Boxboards are showing increasing market activity and quotations are around $52.50 a ton for filled news board delivered in New York City and $45 to $47.50 for plain chip. Building papers and felts are somewhat quieter, a seasonal condition at this time of the year. Wall board also is in rather slow demand. Specialties, such as glassines, greaseproof papers, parchments, etc., are moving in fairly good amounts and at maintained price levels.

The Regent Card and Paper Co. of New York City, has been incorporated under New York State laws with a capital of $10,000 to deal in paper and cardboard. H. Pearlman, of 63 Park Row, New York, represents the new corporation.



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Domestic Raw Materials

Papermaking Rags

Not a great deal of activity has been observed in the market for papermaking rags. Demand from consuming quarters, in fact, has ruled decidedly dull other than for one or two classes of rags; manufacturers being so engrossed with inventories and other matters at the outset of the year that they have directed little attention to rag purchases other than in cases where the need of supplies has been urgent. The situation from nearly every viewpoint is in favor of buyers. There are certain descriptions of rags which are in relatively low supply, and the market for domestic roofing rags appears well sold up for a while, but indications are that papermakers are experiencing no real difficulty in securing all the rags desired, and that, if requirements necessitated, they could bring out larger supplies by the offering of slightly higher prices.

The feature of the market, from a trading standpoint, has been the continued good movement of roofing stock. These rags have been bought in probably better tonnage than ordinarily is the case during the first month of the year, some felt manufacturers having been fairly actively engaged in absorbing supplies. Feltmakers in the Middle West have been buying in the East, including both foreign and domestic rags, and have put market prices on a little higher plane, although this demand seems to have subsided and the market at the moment does not appear to be quite as active as it was. However, as stated above, dealers are well sold up, and prices therefore are well maintained. No. 1 domestic roofing or cloth strippings is selling at 2 cents per pound f. o. b. dealers' shipping points, and No. 2 domestic at 1.50 cents and higher, while foreign dark cottons are quoted on a basis of 1.65 to 1.70 cents per pound ex dock New York. There have been spot sales of dark cottons reported up to 1.75 cents on the dock at American Atlantic ports. Prices of roofing rags abroad display firmness, and in frequent instances European shippers ask figures considerable above those buyers here are willing to grant. It is apparent, however, that if paper mills were in need of bigger supplies and would offer only a slight advance in price, that needed supplies would be forthcoming.

In new cuttings, some grades are moving moderately well in a spotty way. Consumers evidently are buying only to cover actual needs and most transactions involve small quantities of a few certain descriptions. Dealers quote No. 1 white shirt cuttings at 11.75 to 12 cents a pound f. o. b. shipping points, fancy shirt cuttings at 5.75 cents, blue overall cuttings at 7 cents, unbleached cuttings at 9.75 cents, light silesias at 7.50 cents, and washables at 4.75 cents.

The higher grades of old cottons are in limited demand and prices show little change from the levels that have prevailed for some time. No. 1 whites of repacked quality are quoted at 5.50 to 6.50 cents a pound at shipping points, depending on the packing, and No. 2 repacked whites at 2.50 to 3 cents. Repacked thirds and blues are steady in price at around 2.25 cents per pound, and rough blues at 1.80 cents. A sharp advance has been recorded in prices of cotton batting, sales in the East at 4 cents a pound and higher having been reported and in the Middle West at 4.50 cents and probably more.

Other than roofing grades, foreign rags are in slow demand and prices rule on about last reported levels. It is stated that many grades are selling in Europe at higher prices than are obtained here, with the obvious result foreign shippers are not pressing offerings.

Average quotations f. o. b. shipping points and ex dock New York are as follows:

	New York and Chicago
New Stock—	
White shirt cuttings, No. 1	11.75–12.00
White shirt cuttings, No. 2	7.00– 8.00
Fancy shirt cuttings	5.50– 5.75
Washables, No. 1	4.50– 4.75
Unbleached muslin	9.50– 9.75
White lawns	9.25– 9.50
Overall cuttings, blue	6.75– 7.00
Black silesias	4.50– 4.75
Light flannelettes	8.00– 8.25
Canton flannels, bleached	9.00– 9.25
Canton flannels, unbleached	8.25– 8.50
Shoe cuttings, bleached	8.25– 8.50
Shoe cuttings, unbleached	6.50– 6.75
Light silesias	7.25– 7.50
O. D. khaki cuttings	5.50– 5.75
Mixed khaki cuttings	5.00– 5.25
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	3.25– 3.50
Linens, No. 1, white, foreign	13.00–14.00
Light prints, foreign	2.75– 3.00
Old Stock—	
Whites, No. 1 repacked	5.50– 6.50
Whites, No. 2 repacked	2.50– 3.00
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.85– 2.00
Lace curtains	5.75– 6.00
Thirds and blues, rough	1.75– 1.90
Thirds and blues, repacked	2.15– 2.35
Black stockings	3.75– 4.00
Cotton canvas, No. 1	4.75– 5.00
White cotton batting	4.00– 4.50
Roofing, No. 1 (cloth strippings)	1.90– 2.00
Roofing No. 2	1.50– 1.60
Linsey, garments, foreign	1.80– 1.90
Dark colored cottons, foreign	1.60– 1.75
Blue linens, foreign	3.75– 4.00
Gray linens, foreign	4.00– 4.25
White linens, foreign	7.50– 8.00
Light prints, extra foreign	1.80– 2.00

Rope and Bagging

Further recession has occurred in market prices of old rope, reflecting the fact that paper mills are using less of this material than formerly and demand, therefore, lacks the volume that is witnessed ordinarily. Manufacturers of bag and insulating papers who have been accustomed to using old rope as the basic raw material for such papers are now substituting kraft wood pulp to an extensive degree, and the market for old rope has narrowed considerably. Prices have eased to where seldom is more than 3.25 cents a pound at dealers' shipping points offered by mills for No. 1 domestic old manila rope, or higher than 2.75 cents ex dock New York for foreign old rope. It is said, however, that some mills are paying a little in excess of these rates. Mixed strings have sold freely, and at steady prices of around a cent per pound at shipping points.

Routine demand of spotty character is noted for old bagging, and prices are marked by a soft undertone. Paper manufacturers generally offer 1.60 to 1.65 cents a pound at dealers' points for No. 1 scrap burlap, and 1.25 cents for roofing bagging and seem to be filling their wants without difficulty at these prices.

F. o. b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.70-1.85
Gunny, No. 1 foreign	1.60-1.70
Scrap bagging, No. 1	1.60-1.70
Roofing bagging	1.25-1.30
Wool tares, heavy	2.25-2.50
Wool tares, light	2.00-2.25

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For EVERY GRADE of PULP & PAPER

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Send us your felt problems.

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Western Paper Makers Chemical Co., Kalamazoo, Mich., Pensacola, Fla., Jacksonville, Fla., Savannah, Ga., Comstock, Mich.
C. K. Williams & Company, Easton, Pa., Emeryville, Cal., Malaga, Spain.
Georgia-Louisiana Company, East Point, Ga., Marrero, La.
Superior Pine Products Company, Fargo, Ga., Tarver, Ga.
Empire Size & Chemical Co., Albany, N. Y.
Adirondack Mineral Co., Carthage, N. Y.
Superior Sizing Company, Lockport, N. Y.
Paper Makers Importing Co., Easton, Pa., St. Austell, Cornwall, Eng.
Vera Chemical Co. of Canada, Ltd., Freeman, Ontario
Vera Chemical Corporation, Stoneham, Mass.
Vera Chemical Company, North Milwaukee, Wis.
John Regnier & Son Company, Boston, Mass.
George S. Mepham & Company, East St. Louis, Ill.
Pochins & Paper Makers Chemicals, Ltd., Erith, Kent and Manchester, Eng.

Manila rope, No. 1 foreign	2.75-3.00
Manila rope, No. 1 domestic	3.25-3.50
Sisal strings	1.75-2.00
Mixed strings	.90-1.15

Old Paper

Somewhat unexpectedly, market prices of the low grades of old paper scored a fair uptrend shortly after the turn of the year when board mills in the Middle West entered the market as buyers on a moderately large scale, but since then the situation has quieted and prices now display a softer tone. Those descriptions used chiefly in the manufacture of box board advanced approximately $2 or $3 per ton from the bottom levels established during the holidays. Certain of the better grades exhibit a firm price tendency, with available supplies apparently limited and with dealers rather insistent on the figures quoted. This particularly applies to book stock and kraft paper. No. 1 heavy books and magazines are selling readily at 1.30 to 1.35 cents per pound f. o. b. New York, and probably consumers have exceeded these rates in exceptional cases, while No. 1 crumpled book stock is bringing 1.15 to 1.20 cents at shipping points, and No. 1 old kraft paper 2 to 2.15 cents per pound.

Not much trade activity is reported in shavings, and prices quoted range from 2.90 to 3.25 cents a pound at dealers' points for No. 1 hard white, depending on the quality of packing, and 2.60 to 2.85 cents for soft white shavings. Folded newspapers are selling in the East at 60 cents per hundred pounds f. o. b. New York, and No. 1 mixed paper at 47½ to 50 cents, while in the Middle West shippers are securing well above these prices in frequent instances. New corrugated cuttings are moving well at a price basis of around 85 cents per hundred pounds at dealers' shipping points.

The following are quotations named by dealers f. o. b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	2.90-3.25
Hard white shavings, No. 2	2.65-2.85
Soft white shavings	2.60-2.85
Colored shavings	1.25-1.50
Heavy book, No. 1	1.30-1.35
Crumpled book, No. 1	1.10-1.20
Ledger stock	1.60-1.85
Kraft, No. 1	2.00-2.25
New kraft cuttings	2.65-2.80
Manilas, No. 1	.75- .85
White blank news	1.55-1.65
Overissue news, No. 1	.70- .80
Folded news	.60- .70
Sulphite mill wrappings	.70- .80
Old corrugated boxes	.60- .65
New corrugated box cuttings	.80- .90
Mixed paper, No. 1	.47½- .60
Common paper	.35- .40

Pulpwood

Reports tell of wood operations being well under way in Canada and in domestic regions where pulp timber is obtained, and prospects are in favor of a fairly sizable cut this winter although in numerous instances woodsmen are said to intend to take out less supply than in former years. The market at present is quiet; contracts have been arranged in most quarters, and there is limited current business materializing. Quotations are maintained generally, however.

Exports of pulpwood from Canada during 1927 reached a record high figure at 1,541,769 cords, valued at $15,702,705, all of which came to the United States, compared with 1,391,738 cords of a value of $14,066,030 exported in 1926.

Mechanical Pulp

The shutdown of pulp mills in Sweden is having a certain degree of strengthening influence on mechanical pulp prices, at least as regards quotations on Scandinavian ground wood. Moreover, demand here is increasing gradually and the market appears to be taking on a gradually firmer undertone, and values seem to be pointed higher. Grinders in the United States and Canada declare in some instances that they intend to keep production at a minimum until market values rise

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ECONOMY can never be mistaken for cheapness. In the matter of sizing material, starch is cheaper than an all-glue size, yet the results are identical—in fact, the paper made with starch sizing is stronger.

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SPECIAL PAPER

Our experts can show you how these starches can be used advantageously in your mill. They will gladly call on request.

Corn Products Refining Company
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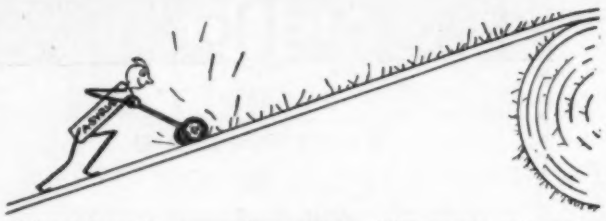
Starch



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Purity 99½%

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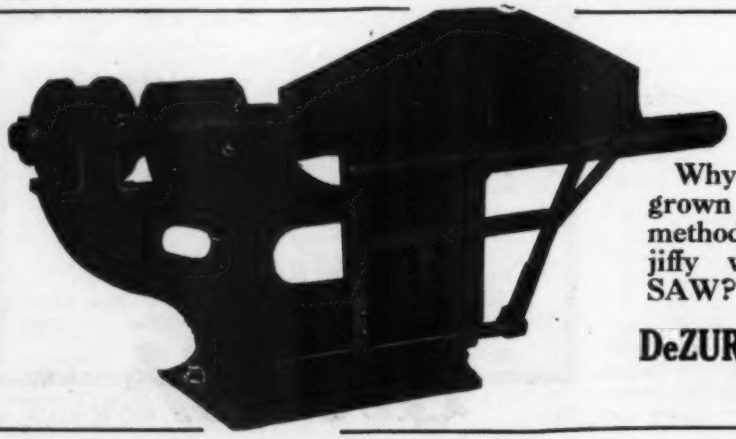


Well Sir:

We used to chop our firewood with axes, now, we have buzz saws.

Why chop out your black knots, ingrown bark, etc., by this primitive method when you can do all this in a jiffy with the DeZURIK KNOT SAW?

DeZURIK NOZZLE SHOWER CO.

Sartell, Minn., U. S. A.

to a level where they can see a profit in manufacturing operations. However, this attitude on the part of producers is offset in good measure by the fact that this has been an open winter so far, thus permitting many grinders to themselves grind all the pulp, or the major portion, which they require for consumption and thereby keep out of the market as buyers.

Quotations on prime Scandinavian ground wood range between $30 and $32 per ton ex dock American Atlantic ports for dry pulp. Canadian producers ask $25 a ton or in the vicinity of that price for freshly-ground pulp f. o. b. grinding plants, while domestic ground wood is mainly nominal in price at about $26 to $27 a ton at shipping points, prices depending on the air dry test and the freight to consuming centers.

Production of ground wood in the U. S. in November amounted to 85,361 tons, compared with 78,759 tons in October. Mill stocks at the end of November were 91,756 tons, against 95,384 tons a month earlier, producers using 85,703 tons during November, against 82,715 tons in the preceding month, and shipping out 3,717 tons, against 2,433 tons.

Chemical Pulp

Inquiry for chemical wood pulp is increasing, according to reports. Consumers are looking around sounding out the market, apparently determining where they can secure supplies of pulp should the lockout in the Swedish pulp mills continue long enough to have important bearing on the market, and while no definite changes have occurred in quoted prices, it is very evident that the undertone is firmer and that higher market levels will be witnessed if the cessation of production in Scandinavia keeps on. Most of the business in domestic chemical pulps at present is against contracts; consumers are taking supplies readily against term commitments made some time ago and are engaging in spot purchases in a reserved manner. Producers are watching the situation carefully and apparently appreciate that if any shortage of pulp develops as a result of the loss of output in Sweden they will be called upon to increase their production to fill up the gap in supplies.

Prices are steady, and, if anything, exhibit a firming tendency. Bleached sulphite is quoted by leading manufacturers at 3.75 to 4 cents per pound f. o. b. pulp mills though it is reported some grades of bleached have been sold down to 3.25 cents. No. 1 strong unbleached sulphite is around 2.50 cents a pound in price at pulp plants, No. 1 book grade sulphite around 2.75 cents, and bleached soda pulp 3.25 cents. Kraft No. 1 grade is quoted at 2.75 to 3 cents per pound at producing points.

Mills in the United States in November produced 105,443 net tons of chemical pulp, contrasted with 107,763 tons in October, and had stocks on hand totaling 19,655 tons at the end of November, against 19,616 tons a month earlier.

Quotations f. o. b. pulp mills are as follows:

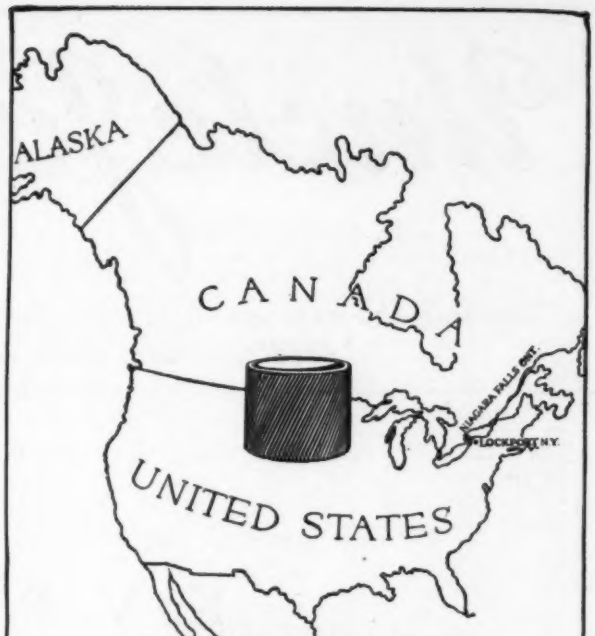
Bleached sulphite	3.75-4.75
Easy bleaching sulphite	2.75-3.00
Unbleached sulphite, No. 1 strong (news grade)	2.40-2.70
Unbleached sulphite, No. 1 book	2.70-3.00
Soda pulp, bleached	3.25-3.50
Mitscherlich, unbleached	3.00-3.25
Kraft, No. 1	2.75-3.00
Screenings, refined	1.40-1.60

Chemicals

Casein quotations appear to have developed a little softer undertone following a period of firmness, and, due in major part to larger offerings, supplies are now reported available at 17 to 17.50 cents per pound for the domestic product and 17.50 to 18 cents for imported casein, duty paid. Soda ash is steady in price and is moving well at a spot basis of 1.32½ cents per pound f. o. b. works, while caustic soda is quoted at 2.90 to 3 cents at works. The market for brimstone is reported firm, and quotations are between $18 and $19 per long ton at mines for bulk shipments.

Average quotations are as follows:

Alum, lump ammonia	3.50 - 3.75
Alum, lump starch	3.75 - 4.00



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Turbine Water Wheels
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A Record-breaking Performance
Means More Power
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INDUSTRIAL—AGRICULTURAL—MUNICIPAL—RESIDENTIAL
A Type for Every Service
GOULDS PUMPS, Incorporated
SENECA FALLS, N. Y.
PUMPS

Uncle Jake says—

"Stuffing the average man with flattery is like feeding cream puffs to a ditch digger; when you tickle the palate you soften the muscle."

We have learned much more about paper making from criticisms than we have from flattery.

We have improved our

K. V. P. PAPERS

as a result of suggestions made by their big users to a degree that we do not hesitate to recommend them to you as being better, far better, than the average papers on the market.

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WE WILL BUY

Dierks Lumber & Coal Co. 6s, 1936	@	100
Escanaba Paper Co. 6s, 1939	@	96
Escanaba Paper Co. 5s, 1928	@	99
Eddy Paper Co. 7½s, 1931	@	102¾
Fraser Company 6s, 1950	@	104½
Hammermill Paper Co. Pfd.	@	108
Hammermill Paper Co. 6s, 1939	@	101½
Mengel Co. 7s, 1934	@	103
Pacific States Lumber Co. 8s	@	OW
St. Lawrence Pulp & Lumber Co. 6s, 1933	@	7
Ticonderoga Pulp & Paper Co. 6s, 1940	@	100
Watab Paper Co. 6½s, 1942	@	103½
Whitman Parsons Pulp & Lumber Units	@	15

WE WILL SELL

Craig Mountain Lumber Co.	@	BW
Eastern Manufacturing Co. 7s, 1938	@	97
Great Northern Paper Co.	@	78
Marinette & Menominee Paper Co. 7½s	@	104
New England Lime Co. Pfd.	@	95
West Virginia Pulp & Paper Pfd.	@	103
West Virginia Timber Co. Pfd.	@	96
White Grandin Lumber Company	@	96

H. D. KNOX & CO.

44 Broad St., N. Y. 27 State St., Boston

Inquiries invited on all Paper, Pulp, Lumber Securities

80 YEARS'—

Experience in Making Dryer Felts

FITCHBURG Cotton Dryer Felts have conformed to the highest standards of quality and workmanship for over eighty years. This is one reason why today they are used so extensively.

¶ Manufactured in English weave, two, three, four, five and six ply, from 60 to 210 inches in width.

¶ Fine faced felts for fine papers. For coarse papers, use "Triune" three-ply Felts —**they're dependable.**

FITCHBURG DUCK MILLS

ESTABLISHED 1844

54 Duck Mill Road FITCHBURG, MASS.

New Papers

Writing—	
White rag	15-40
White sulphite	9-30
Colored rag	15-40
Colored sulphite	8-30
Ledger—	
White rag	16-40
White sulphite	9-30
Colored sulphite	8-30
Colored rag	15-40
Bonds—	
White rag	16-40
White sulphite	7-30
Colored sulphite	7-30
Colored rag	15-40
Book—	
No. 1 S. & S. C.	6.25- 8.00
Machine finished	6.15- 8.00
English finished	6.15- 8.00
Coated and enameled	8.00-14.00
Lithograph, M. F.	8.00-15.00
Newsprint—	
Rolls, contract	3.25- ....
Rolls, transient	3.50- ....
Sheets	3.65- 3.80
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24x36	.70- .80
No. 1 manila, 24x36	.70- .80
Kraft	.90- 1.00
Wrapping—	
No. 1 kraft	6.00- 6.50
No. 2 kraft	5.00- 5.25
Southern kraft	4.25- 4.75
Boards—	New York and Chicago
Solid news	52.50-57.50
Straw	52.50-57.50
Plain chip	45.00-47.50
White coated chip	50.00-55.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

Chemicals

(Continued from page 1945)

Blanc fixe, powder	4.00 - 4.25
Bleaching powder	2.00 - 2.35
Brimstone (long ton, at mine)	18.00 -19.00
Casein (duty paid)	17.00 -18.00
Caustic soda, spot delivery	2.90 - 3.00
China clay, domestic, washed	8.00 -10.00
China clay, foreign	14.00 -20.00
Rosin, Grade E	9.70 - 9.80
Satin white	2.00 - 2.25
Soda ash, 50 per cent light (bags)	1.32½- ....
Starch, papermakers', in bags	3.32 - ....
Talc (ton)	16.00 -18.00

Charles J. Munroe, formerly with W. H. Claflin & Co., Boston paper merchants, is said to have accepted a position with the Franklin Paper Co. of Holyoke.

Market Quotations

Issued by H. D. Knox & Co., 44 Broad St., New York

The quotations mentioned below are more or less nominal in some cases owing to the inactivity of the securities, but we invite inquiries on these and other allied industries' securities when we will endeavor to furnish actual markets.

BONDS	Bid	Asked
Abitibi Fibre Co. 6s, 1947	101	102½
Abitibi Power & Paper 6s, 1931	101	102½
Abitibi Power & Paper 6s, 1940	104¾	
Advance Bag & Paper Co. 7s, 1943	104½	105¼
American Sales Book Co. 6s, 1939	102½	104
American Writing Paper Co. 6s, 1939	75	78
American Book Co. 6s, 1928	99	101
Bastrop Pulp & Paper Co. 6½s, 1940	101	103
Beaver Products Co. 7½s	109	111
Beaver Board Co. 8s, 1933	101	
Bedford Pulp & Paper Co. 6½s, 1942	98	100
Belgo-Canadian Paper Co. 6s, 1943	102	103
British Columbia Pulp & Paper 6s, 1950	87½	90
Brompton Pulp & Paper 6s, 1935	101¼	103¼
Brompton Pulp & Paper 6s, 1946	100¾	103
Brown Co. 5½s	101	102
Canadian Paperboard Co. 7s, 1937	98½	100½
Cape Breton Pulp & Paper 6s, 1932	101	103
Celotex Co. 6½s, 1939	100½	102½
Celotex Co. 6s, 1929	97	99
Central Paper Co. 6½s, 1941	88	89
Central Paper Co. 6½s, 1930	87	90
Central Paper Co. 7s, 1932	87	92
Champion Fibre Co. 6s, 1941	100½	102
Champion Paper Co. 6s, 1945	95	98
Champion Coated Paper Co. 6s	100	102
Canada Power & Paper Co. 5½s, 1958	95	97
Columbia River Paper Mills 6s	98	
Defiance Paper Co. 6s, 1939	98	100
Dells Paper & Pulp Co. 6s	95	98
Donnacona Paper Co. 5½s		100
Eastern Manufacturing 7s, 1938	95½	97
Eddy Paper Co. 7½s, 1931	102¾	
Escanaba Paper Co. 6s, 1939	96	98
Escanaba Paper Co. 5s, 1928	99	101
Filer Fibre Co. 7s	90	95
Fort William Paper Co. 6s, 1946	101	102
Fraser Co. 6s, 1950	104½	
Hammermill Paper Co. 6s, 1939	101½	
Hartje Paper Co. 6s	1½	
Hawley Pulp & Paper 6s, 1946	98	
Hoberg Paper & Fibre Co. 7s, 1937	94½	96½
Howard Smith Paper Co. 7s, 1941	104	105
Industrial Fibre Co. 8s	98	100
Itasca Paper Co. 6s	97	
Itasca Paper & Prairie River 5½s	96	
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Manitoba Paper Co. 6½s	100	103
Marathon Paper Mills 5½s, 1942	100	103
Marinette & Menominee Paper Co. 7½s, 1936	103	104½
Mead Pulp & Paper Co. 5s	98½	
Mengal Co. 7s, 1934	103	105
Mengal Co. 7s, 1933	101	
Minnesota & Ontario Paper Co. 6s	Mkt.	
Missisquoi Pulp & Paper Co. 7s, 1929	99¼	
Missisquoi Pulp & Paper Co. 6s, 1945	98½	
Monroe Paper Products 7½s, 1932	97	99
Murray Bay Paper Co. 6½s	103	
Ontario Pulp & Paper Co. 6s, 1931	108	
Oswego Falls Paper Co. 6s, 1941	99	102
Paper & Textile Machinery Co. 7s	100	103
Parker Young Co. 6½s, 1944	98½	
Paterson Parchment Paper 6s, 1938	101	103
Peerless Paper Co. 6s	98	100
Penobscot Chemical Fibre Co. 6s, 1942	102½	104½
Price Bros. 6s, 1943	105	107
Price Bros. 6s, 1932	106	108
Queen City Paper Co. 7s, 1933	97	100
Richardson Co. 6s, 1938	100	102
River Raisin Paper Co. 6s, 1936	99	101
Roland Paper Co. 6s, 1937	99	101
St. Annes Paper Co. 6½s, 1946	103	
St. Croix Paper Co. 5s, 1928	99	
St. Helens Pulp & Paper 6½s, 1941	98	
St. Lawrence Paper Mills 6s, 1946	100	
St. Regis Paper Co. 6s, 1931	101	103
St. Lawrence Pulp & Lumber Co. 6s, 1933	7	
Spruce Falls Power & Paper Co. 5½s		100
Spanish River Pulp & Paper 6s, 1931	107	
Stevens & Thompson Paper Co. 6s, 1942	93	94
Taggart Bros. 6s, 1944	95	100
Tait Paper & Color Industries 6s	85	95
Ticonderoga Pulp & Paper 6s, 1940	100	
Tomahawk Craft Paper Co. 7s, 1928	97	
Tonawanda Paper Co. 5½s	100	103
United Wall Paper 6s, 1947	96	98
Watab Paper Co. 6½s, 1942	103½	

(Continued on page 1955)

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

J. ANDERSEN & CO.
21 East 40th Street New York City

Importers of Chemical Pulps
BLEACHED AND UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
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BATHURST LUMBER COMPANY, LIMITED

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SELLING AGENTS
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Unbleached Sulphite 50 tons daily
Kraft Pulp 50 tons daily

Our pulp is made from Canadian Spruce
We ship in sheets, baled

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Stock Pump

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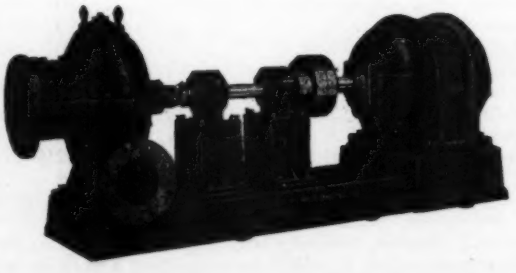
It is a "BALL BEARING PUMP" with the ball bearings mounted in horizontally split housings which are widely spaced to give smoothness and stability in operation. Notice the HORIZONTAL SPLIT CASING and large hand hole in suction. NON-CLOGGING IMPELLER.
Ask for circulars and let us consider your requirements.

Lawrence Pump & Engine Co.
P. O. BOX 70,
LAWRENCE, MASS.
or 90 West St., New York.



EXPORTS

Exportations of paper from the United States in November last showed a fair increase over the shipments in the preceding month, in point of value, and also a fairly sharp gain over exports in the corresponding month of 1926, according to official figures compiled and issued by the U. S. Department of Commerce in Washington. During November, 1927, exports of paper of all kinds from this country aggregated in value $2,350,500, contrasted with exports of a declared value of $2,281,757 in October last, and $2,115,802 in November, 1926. Paper exports from the United States in the first eleven months of 1927 totaled in value $24,718,504, recording a slight increase over the exports of a value of $24,500,808 in the similar period of 1926.

Exports of newsprint in November amounted to 1,693,039 pounds, valued at $82,653 compared with 1,478,206 pounds of a value of $76,860 in the preceding month, and 2,511,920 pounds of a value of $128,855 in November, 1926. The principal shipments of newsprint last November were to the Philippine Islands, totaling 665,630 pounds for the month; to South America, 309,921 pounds, and to Cuba, 249,549 pounds. Exports of book paper, not coated, from the United States in November were 1,130,514 pounds, valued at $97,976, against 1,816,609 pounds of a value of $178,265 in the same month in 1926.

Exports of writing paper from the U. S. in November reached a total of 1,417,618 pounds, valued at $200,621, compared with 943,525 pounds of a value of $151,324 in November, 1926. Shipments of wrapping paper were 3,547,698 pounds, valued at $210,905, in November last, against 2,250,711 pounds of a value of $147,355 in the same month of 1926, while exports of tissue paper were 392,428 pounds of a value of $106,198, contrasted with 477,456 pounds of a value of $103,576 in November, 1926.

Exports of box board from the U. S. continued to rise in November, totaling 3,763,459 pounds in that month, valued at $127,032, against 3,427,408 pounds of a value of $105,408 in the preceding November, while exports of strawboard and other paper board were 2,430,453 pounds of a value of $129,789, compared with 3,789,168 pounds of a value of $179,223 in November, 1926.

IMPORTS

Wood Pulp

The lockout in the Swedish wood pulp mills went into effect as scheduled on January 2, and all of last month production of pulp in that important pulp-producing country was at a standstill excepting for several mills which are not members of the manufacturers' association. There was every indication late in January that the strike of the Swedish pulp mill workers would come to an end on February 1. The mediation commisison appointed by the Government succeeded in bringing the representatives of the mill owners and their employees together, and a tentative agreement was reached, only to be overwhelmingly rejected by the trade union at a meeting called on January 25 at which it was expected the agreement drawn up by representatives of the two factions would be ratified, and thus end the labor difficulty in the Swedish pulp industry.

Latest reports say that the situation in Sweden has now assumed more serious proportions. Both sides seem determined to fight the matter out to the last ditch. The manufacturers, who conceded a great many points during the negotiations resulting in the drawing up of the rejected agreement, are said to have taken a stronger stand than ever, and to be determined to put through the measures demanded and not give in one whit to the strikers. The mill workers, strongly backed up by their powerful union, seem just as determined in their attitude, and thus the situation stands. Meanwhile, pulp mills in Sweden are shut down, and every day the lockout continues something like 5,000 tons of wood pulp production is lost.

Statistics from reliable sources show that the exportable production of chemical wood pulp in Sweden totals between 100,000 and 110,000 tons per month. Therefore, already a hundred thousand tons or more pulp has been lost to the world market, and it looks as though a vastly greater loss will be witnessed before the strike of the pulp mill workers ultimately comes to an end. Obviously, this is bound to have important influence on the chemical pulp market. Prices not alone have firmed in tone but in some instances slight advancement definitely has been noted. Offerings from abroad are diminishing, shippers in Europe are quoting higher prices, importers in New York are exercising caution in making sales, and consumers in various parts of the United States are becoming somewhat apprehensive and are inquiring quite freely concerning available supplies of sulphite and kraft pulp and in some cases are absorbing the pulp found in the market as a precaution against future market possibilities. There has been sufficient pulp production eliminated to seem to make one thing sure, namely, that there will be no surplus of chemical pulp hanging over the market during 1928 as was the case in 1927, and in view of this it appears assured that market prices will rule much firmer this year. Should the shutdown of the Swedish mills prove to be a long-drawn-out affair, anything might happen with respect to sharp advancement in pulp market values.

Strong prime unbleached sulphite is quoted at about a minimum of 2.50 cents per pound ex dock New York for No. 1 grade, while easy bleaching sulphite is quoted around 2.90 cents a pound on the dock, No. 2 unbleached at 2.35 cents, prime bleached sulphite from 3.40 cents upward, and prime Swedish kraft at 2.70 cents. Scandinavian ground wood is on a quotable range of $30 to $32 per short ton ex dock American Atlantic ports for dry pulp.

Imports of chemical pulp into the United States during November last were heavy, amounting to 128,684 long tons of all grades of chemical, valued at $7,595,180, and constituting the largest single month's importations in any month of 1927 up to November with the exception of January, comparing with 120,742 tons imported in October last, and 110,933 tons in November, 1926. The November imports brought the total for the first eleven months of last year up to 1,149,104 tons, giving a monthly average of 104,464 tons, against a monthly average of 104,390 tons in the corresponding period of 1926. Ground wood imports in November were 25,275 tons, valued at $618,625, making a total of 196,985 tons in the first eleven months of 1927 or a monthly average of 17,907 tons, contrasted with an average of 22,824 tons in the similar time of 1926.

Current market quotations ex dock New York and receipts at the port of New York January follow:

Bleached sulphite, No. 1	3.40– 4.00
Unbleached sulphite, strong No. 1	2.50– 2.80
Unbleached sulphite, No. 2	2.35– 2.50
Easy bleaching sulphite	2.75– 3.00
Mitscherlich unbleached, genuine	2.90– 3.15
Mitscherlich unbleached, ordinary	2.40– 2.60

No. 3 Hercules Jordan—Timken Mounted

The No. 3 Hercules

is revolutionizing Jordan design.

Paper Mill experience and experiments combined with common sense engineering produced this remarkable machine. Let us tell you about it. Write.

THE HERMANN MANUFACTURING CO.

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A. H. COX and CO.
Seattle, Wash.

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WATEROUS LTD.
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Fourdrinier Wires of Known Quality

You'll find our Fourdrinier wires honestly made, by skilled craftsmen who take a justifiable pride in producing a high **quality** product.

That's why so many paper makers find them so satisfactory, and use them exclusively.

Quality, also, is the dominant feature of our Cylinder Moulds, Dandy Rolls, and Wire cloth of Brass, Bronze, Monel and Steel.

CHENEY BIGELOW WIRE WORKS

Establis hed 1842

Springfie ld, Mass.

Kraft, standard Swedish..... 2.65– 2.80
Ground wood, per ton (dry)..... 30.00–32.00

Bulkley, Dunton & Co., 800 bls. from Rotterdam, 1,700 Sundsvall, 2,365 Gefle, 6,050 Iggesund, 4,000 Bremen and 490 Trieste; M. Gottesman & Co., 930 bls. from Kotka, 1,010 Rotterdam, 6,780 Sundsvall and 2,025 Iggesund; Scandinavian Pulp Agency, 10,625 bls. from Sundsvall and 3,775 Skutskar; J. Andersen & Co., 1,300 bls. from Hamburg, 4,200 Iggesund and 284 Trieste; Perkins-Goodwin Co., 875 bls. from Sundsvall and 150 Oslo; E. J. Keller Co., 1,200 bls. from Rotterdam and 1,691 Hamburg; American Exchange Irving Trust Co., 784 bls. from Trieste and 3,000 Iggesund; Johaneson, Wales & Sparre, 631 bls. from Sundsvall; Pagel, Horton & Co., 5,175 bls. from Gefle; E. M. Sergeant Co., 3,193 bls. from Gothenburg; Atterbury Bros., 750 bls. from Gothenburg and 1,000 Oslo; Woodpulp Service Corp., 500 bls. from Gothenburg; A. P. W. Paper Co., 11,267 bls. from Sheet Harbor; Castle & Overton, 2,041 bls. from Hamburg; Buck, Klaer & Co., 1,200 bls. from Stockholm; First National Bank of Boston, 300 bls. from Stockholm; Price & Pierce, 750 bls. from Gothenburg; W. Hartmann & Co., 200 bls. from Hamburg; Waterfalls Paper Mills, 7,618 bls. from Trieste; Chemical National Bank, 300 bls. from Oslo; Order, 1,601 bls. from Bremen, 1,565 Raumo, 280 Hamburg, 4,000 Sebenico, 1,850 Oslo, 1,750 Sundsvall, 992 Helsingfors and 25,620 Gefle.

Paper Stock

Doubtless the feature in the United States import trade in papermaking materials in January, 1928, was the decided decrease in receipts of rags. Continuing a more or less steady decline in papermaking rag imports for some months past, the January arrivals of rags, judging from imports at the port of New York, fell to a lower level than in a long time. There were smaller amounts of old rope, bagging and other paper stock also in January.

Papermaking rag imports into this country in the first eleven months of 1927 totaled 351,818,774 pounds, valued at $7,027,219, compared with 438,341,064 pounds of a value of $9,563,200 imported in the same period of 1926. Imports of waste bagging and waste paper in the same time amounted to 97,348,557 pounds, against 105,313,826 pounds in the similar period of 1926, while imports of old rope and miscellaneous paper stock in the eleven-month period were 56,996,209 pounds, against 75,733,551 pounds in the corresponding time of 1926.

Imports of all kinds of paper stock other than wood pulp at New York in January, 1928, these data being taken from manifests of steamers reaching that port during the month, follow:

Old Rope—Brown Bros. & Co., 203 coils and 181 bls.; Jaffe Products Co., 13 bls.; Ellerman's Wilson Line, 17 coils; Pacific National Bank, 221 coils; N. E. Berzen, 36 bls.; Daniel I. Murphy, Inc., 58 coils and 3 bls.; Alfred Bloch & Co., 79 bls.; William Steck & Co., 43 bls.; W. Schall & Co., 75 rolls; New York Trust Co., 104 coils; International Purchasing Co., 60 coils; E. J. Keller Co., 100 bls.; Order, 20 rolls and 29 bls.

Old Bagging—American Exchange Irving Trust Co., 138 bls.; Castle & Overton, 155 bls.; British Bank of South America, 61 bls.; E. Mayer, 70 bls.; Richard Shipping Co., 112 bls.; A. W. Fenton, Inc., 177 bls., Union National Bank, 100 bls. Bulkley, Dunton & Co., 107 bls.; National City Bank, 38 bls.; Darmstadt, Scott & Courtney, 110 bls.; E. J. Keller Co., 390 bls.; Order, 83 bls.

Rags—Castle & Overton, 183 bls.; J. Cohen & Son, 22 bls.; Darmstadt, Scott & Courtney, 156 bls. William Steck & Co., 56 bls.; Melrose Paper Stock Co., 257 bls.; Victor Galaup, Inc., 123 bls.; E. Butterworth & Co., 157 bls.; Sterling Mill Supply Co., 20 bls.; P. J. Johnson, 70 bls.; Katzenstein & Keene, 120 bls.; Gerofsky Bros., 2 bls.; Jaffe Products Co., 70 bls.; Amtorg Trading Co., 3 bls.; The Barrett Co., 132 bls.; P. Cohale, 100 bls.; E. J. Keller Co., 1,531 bls.; Chemical National Bank, 268 bls.; Philadelphia Girard National Bank, 114 bls.; American Exchange Irving Trust Co., 115 bls.; Banca Commerciale Italian Trust Co., 203 bls.; French American Banking Corp., 143 bls.; Bank of America, 306 bls.; New York Trust Co., 53 bls.; Commercial National Bank, 87 bls.; Guaranty Trust Co., 20 bls.; Equitable Trust Co., 276 bls.; Garfield National Bank, 61 bls.; Chase National Bank, 33 bls.; Bank of New York & Trust Co., 248 bls.; National City Bank, 10 bls.; Chatham & Phenix National Bank, 80 bls.; American Express Co., 18 bls.; American Overoccan Corp., 25 bls.; Van Oppen & Co., 48 bls.; A. W. Fenton, Inc., 190 bls.; C. R. Spence & Co., 264 bls.; Brown Bros. & Co., 74 bls.; C. B. Richard & Co., 628 bls; Goldman, Sachs & Co., 436 bls.; United States Lines, 55 bls.; Order, 1,039 bls.

Miscellaneous Paper Stock—Daniel M. Hicks, Inc., 121 bls.; Brown Bros. & Co., 138 bls.; C. B. Richard & Co., 672 bls.; Banca Commerciale Italian Trust Co., 66 bls.; Philadelphia Girard National Bank, 408 bls.; Castle & Overton, 700 bls.; Victor Galaup, Inc., 172 bls.; Daniel I. Murphy, Inc., 275 bls. R. Godfrey, 3 bls.; Chase National Bank, 297 bls.; S. Birkenstein & Sons, 162 bls.; E. Butterworth & Co., 191 bls.; Equitable Trust Co., 195 bls.; Amsinck, Sonne & Co., 66 bls.; Alexander H. Searle, Inc., 62 bls.; Anglo-South American Trust Co., 135 bls.; Darmstadt, Scott & Courtney, 154 bls; Burnside & Cooper, 81 bls.; E. J. Keller Co., 292 bls.; J. Cohen & Son, 22 bls.; Milton Snedeker Corp., 130 bls.; National Bank of Commerce, 105 bls.; New York Trust Co., 77 bls.; Baring Bros. & Co., 34 bls.; Order, 1,622 bls.

Paper

Importations of finished paper into the United States in November, 1927, showed an increase in value over the imports in the preceding month and also a gain over the imports in

MITTS & MERRILL

The Mitts & Merrill Shredder will reduce magazines, books, old papers and boxboard, frozen or dried pulp laps, roll and sheet stock in a thoroughly economical manner.

Built in sizes with spouts ranging from 18 to 45 inches wide.

We also build a 100% efficient "Hog" to reduce pulp mill bark and wood refuse.

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Saginaw, Mich.

Fed by GRAVITY

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See Pages 372 and 373 in the Paper and Pulp Mill Catalog

Morey Paper Mill Supply Co.

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"LAMBETH" COTTON TRANSMISSION ROPE
and EGYPTIAN COTTON ROPE FOR SHEAHAN CARRIERS
Careful, Intelligent, Quick Service

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Steam **Triplex Plunger**
Vacuum Pumps **Jet Condensers**

Manufactured by
The Scranton Pump Co., Scranton, Pa.

PUMPS

Pickles' Patent
Automatic Steam Regulator
FOR
Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

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Fitchburg, Mass., U. S. A. **Lennoxville, P. Q., Canada**

Union Bronze Screen Plates
(Best phosphorized Cast Metal)

Old Plates RECLOSED and RECUT to accurate gauge
UNION BRONZE SCREWS for Screen Plates
Immediate Delivery of the Largest Orders. Satisfaction Guaranteed

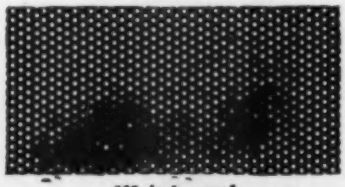
The Witham Screen Plate Fastener, Patented
THE ORIGINAL **THE BEST**

HARDY BRONZE

SCREEN PLATES
ACID RESISTING
VALVES

Wm. A. Hardy & Sons Co.
Fitchburg, Mass.

Perforated Metal Screens for Pulp and Paper Mills



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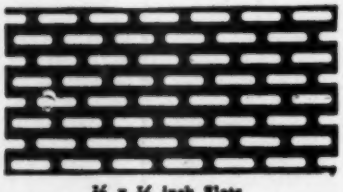
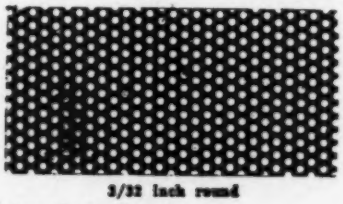


⅛ x ½ inch Slots



3/32 inch round

Steel, Copper, Brass, Bronze and other alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

CHARLES MUNDT & SONS, 57-65 Fairmount Ave., Jersey City, N. J.

the corresponding month of 1926, according to official statistics compiled and issued by the U. S. Department of Commerce. During November last paper imports were valued at a total of $14,202,372, compared with $13,051,890 in October last year, and $12,607,010 in November, 1926. During the first eleven months of 1927 total paper imports into this country reached a value of $136,069,884, recording an appreciable increase over the imports of a value of $126,788,996 in the same period of 1926.

Paper imports in January were fairly large, judging from arrivals at the port of New York. Imports of all kinds of paper at the port of New York in January, 1928, these data being taken from manifests of steamers arriving at that port during the month, follow:

Printing—Guaranty Trust Co., 171 bls. from Hamburg; E. Dietzgen & Co., 18 cs. from Hamburg and 145 cs. Rotterdam; Hudson Trading Co., 220 reels from Sundsvall; F. Henjes, Jr., 124 reels from Hamburg; Perkins-Goodwin Co., 575 reels from Hamburg and 138 rolls Bremen; C. A. Haynes & Co., 57 bls. from London; P. C. Zuhlke, 147 cs. from Antwerp; Walker, Goulard, Plehn Co., 168 cs. from Bremen and 43 bls. Hamburg; New Haven Times-Union, 109 reels from Gothenburg; M. Gottesman & Co., 122 rolls from Gothenburg; B. F. Drakenfeld & Co., 46 cs. from Liverpool; Bank of Montreal, 3,120 rolls from Corner Brook; National City Bank, 278 reels from Gothenburg; Watch Tower Bibe & Tract Society, 74 reels from Helsingfors; C. Steiner, 9 cs. from Hamburg; Heemsoth, Basse & Co., 18 cs. from Hamburg; Order, 1,123 reels, 410 cs. and 348 bls. from Bremen, 88 rolls from Sundsvall, and 1,180 reels and 95 bls. from Hamburg.

Wrapping—International Forwarding Co., 2 bls. from Bremen; National City Bank, 50 bls. from Genoa; Blauvelt Wiley Paper Mfg. Co., 18 bls. from Glasgow; Wilkinson Bros. & Co., 10 bls. from Hamburg and 46 bls. Gothenburg; F. C. Strype, 12 cs. and 2 rolls from Antwerp; Arkell Safety Bag Co., 213 reels from Gothenburg; Hope Paper Co., 55 reels from Gothenburg; Gilbert Paper Co., 46 reels and 97 bls. from Gothenburg; Borregaard Co., 230 bls. from Gothenburg; D. S. Walton & Co., 248 rolls from Hamburg; Consumers Paper Co., 9 bls. from Rotterdam; Birn & Wachenheim, 9 cs. from Antwerp; Order, 2 rolls and 1,000 bls. from Antwerp and 76 bls. from Bremen.

Cigarette—Standard Products Corp., 578 cs. from Havre and 16 cs. Antwerp; DeManduit Paper Corp., 566 cs. from Havre and 908 cs. St. Nazaire; P. J. Schweitzer, Inc., 364 cs. from Marseilles; R. J. Reynolds Tobacco Co., 2,070 cs. from St. Nazaire; American Tobacco Co, 1,600 cs. from Bordeaux; Surburg Co., 20 cs. from Havre; British-American Tobacco Co., 5 cs. from Liverpool; P. Lorillard Co., 50 cs. from Marseilles; M. Spiegel & Sons Co., 18 cs. from Hamburg.

Writing—L. Bamberger & Co., 3 cs. from Havre; F. L. Kraemer & Co., 2 cs. from London; Distinctive Writing Paper Co., 5 cs. from Havre; J. W. Hampton Jr. & Co., 30 cs. from Hamburg.

Filter—H. Reeve Angel & Co., 38 cs. from London and 66 cs. Southampton; C. Sleicher & Scholl Co., 17 cs. from Hamburg; Lunham & Reeve, 3 cs. from London; E. Fougera & Co., 42 cs. from Southampton and 40 cs. Bordeaux; J. Manheimer, 149 bls. from Southampton; A. Giese & Son, 3 bls. from Southampton.

Drawing—Keuffel & Esser Co., 115 cs. and 90 rolls from Hamburg and 4 cs. London; H. Reeve Angel & Co., 5 cs. from London.

Tissue—Schenkers, Inc., 129 cs. from Hamburg; D. C. Andrews & Co., 20 cs. from Liverpool; G. W. Sheldon & Co., 2 cs. from London; Order, 14 cs. from Hamburg.

Hanging—Heemsoth, Basse & Co., 81 bls. from Bremen; Mercantile Trust Co., 3 cs. from Hamburg; Guaranty Trust Co., 30 bls. from Hamburg; F. J. Emmerich & Co., 57 pkgs. from Hamburg, 20 bls. Havre and 14 pkgs. London; Cassidy & Hicks Wallpaper Co., 6 cs. from Hamburg; W. P. Nelson & Co., 4 cs. from Hamburg; Beard Wallpaper Co., 5 cs. from Hamburg; A. C. Dodman Jr. Inc., 81 bls. from Liverpool and 22 pkgs. Southampton; C. A. Haynes & Co., 6 bls. from Liverpool, and 128 pkgs. London; Baldwin Universal Co., 2 cs. from Bremen; W. H. S. Lloyd & Co., 13 bls. from Liverpool; C. Bloom, 2 cs. from Southampton; Atlas Wallpaper Co., 2 bls. from Hamburg; Panama-Pacific Line, 17 pkgs. from London; Globe Shipping Co., 20 bls. from Hamburg; P. E. Streich, 4 bls. from Hamburg; Roach & Craven, 2 bls. from Hamburg.

Photo—P. C. Zuhlke, 317 cs. from Antwerp; Gevaert Co. of America, 328 cs. from Antwerp; Globe Shipping Co., 310 cs. from Bremen; P. Puttmann, 42 cs. from Antwerp; American Express Co., 233 cs. from Antwerp; J. H. Schrieder Banking Corp., 2 cs. from Bremen; J. J. Gavin & Co., 8 cs. from Liverpool; Medo Photo Supply Co., 4 cs. from London; Order, 46 cs. from Hamburg.

Board—R. F. Downing & Co., 4 rolls from Bremen; Adrian Vuyck, 622 reels from Rotterdam; J. P. Heffernan Paper Co., 187 reels from Rotterdam; Robert Wilson Paper Corp., 144 reels from Rotterdam and 254 bls. Antwerp; Coty, Inc., 149 cs. from Havre; Perkins-Goodwin Co., 138 rolls from Rotterdam; Bourjois, Inc., 26 cs. from Havre; Steffens, Jones & Co., 5 cs. from Rotterdam; Equitable Trust Co., 31 bls. from Hamburg; Order, 189 bls. from Bremen, 415 rolls from Rotterdam and 174 bls. from Hamburg.

Miscellaneous—Whiting-Patterson Co., 26 cs. from Southampton and 23 cs. London; Globe Shipping Co., 10 cs. from Bremen and 41 cs. Rotterdam; F. Murray Hill, Inc., 19 cs. from Bremen; L. A. Consmiller, 8 cs. from Bremen; S. Gilbert, 33 cs. from Bremen and 26 cs. Rotterdam; Titan Shipping Co., 22 cs. from Havre; International Forwarding Co., 32 cs. and 26 rolls from Rotterdam and 10 cs. Hamburg; P. H. Petry & Co., 20 cs. from Rotterdam, 17 cs. Hamburg and 4 cs. Bremen; Bendix Paper Co., 2 cs. from Hamburg; Banca Commerciale Italian Trust Co., 21 cs. from Hamburg; Freedman & Slater, 2 cs. from Hamburg; Causon & Montgolfer, 6 cs. from Havre; Hensel, Bruckman & Lorbacher, 26 cs. from Havre, 97 cs. Bremen and 6 cs. Rotterdam; Keller-Dorian Paper Co., 79 cs. from Havre; F. Henjes, Jr., 3 cs. from Havre; R. F. Downing

A work of precision and care

Fig. 325
Screwed Jenkins Standard Iron Body Gate Valve.

The making of a Jenkins Iron Body Valve is as much a work of precision and care from beginning to end as the making of a Jenkins Bronze Valve. The Jenkins "Diamond" mark brings to the engineer the same unfailing indication of a valve made for the maximum service, not merely the average.

Care starts with the selection of metal. Metal is proved by analyses by competent metallurgists before and after casting. Machining is held to close limits, assembly is painstaking, while inspection is thorough and frequent in the various stages of manufacture.

This care is not enough to satisfy the makers of Jenkins Iron Body Valves, for each Valve is given a series of tests far in excess of the pressure for which it is recommended.

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JENKINS BROS., Limited
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Always marked with the "Diamond"
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SINCE 1864

The Davis Pressure Regulator is constructed so as to save in upkeep cost as well as in the cost of steam

IS THERE a process, an auxiliary, or a heating system in your plant that is getting more than its share of steam—that is, operating at boiler pressure when a much lower pressure would do this work? A Davis Pressure Regulator can be set to deliver exactly the right amount of steam for any given service—automatically and without regard to high pressure fluctuations. It saves steam.

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DAVIS VALVE
STEAM-SAVERS SINCE 1878
SPECIALTIES

VALVE MAKERS FOR OVER FIFTY YEARS

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Our Product Is the Best.

Proved by Test from Coast to Coast

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THE WATERBURY FELT CO.

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FELTS and JACKETS

Top and Bottom Wet Felts for board machines, with all the qualities requisite to insure long life and continuous production.

They Satisfy

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LARGEST SPECIALISTS IN AMERICA ON

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Hamilton Felts

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Liquid Chlorine

Single Unit Tank Cars Multi-Unit Tank Cars

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Pittsburgh Piping & Equipment Co.

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Steel Plate Construction

Steel Storage Tanks, Blast Furnaces, Gas Holders

Steel River Barges and Plate Work of all Kinds

Steel Transmission Towers

RITER-CONLEY COMPANY

General Offices, Pittsburgh, Pa.

& Co., 4 cs. from Havre and 23 pkgs. London; Brown Bros. & Co., 9 cs. from Hamburg; Whitfield Paper Works, 45 cs. from Kobe; J. B. Bernard & Co., 2 cs. from Hamburg, 21 cs. Southampton and 29 cs. Antwerp; Hardware Tool Co., 37 cs. from Rotterdam; Japan Paper Co., 2 cs. from Rotterdam, 2 cs. Havre and 30 cs. Genoa; J. Beckard & Co., 2 cs. from Bremen; D. C. Andrews & Co., 6 cs. from Antwerp and 20 cs. Hamburg; B. Meiners, 10 cs from Canton; J. J. Bernitz, 63 bls. from Hamburg; Birn & Wachenheim, 8 bls. from Antwerp; Meadows, Wye & Co., 31 cs. from Rotterdam; J. H. & G. B. Siebold Co., 40 cs. from Canton; Coenca-Morrison Co., 2 cs. from Havre; C. B. Richard & Co., 56 cs from Havre; Bank of the Manhattan Co, 20 cs. from Havre; Caldwell & Co., 20 pkgs. from Rotterdam; Vernon Bros., Ltd., 51 cs. from Glasgow; Phoenix Shipping Co., 2 cs. from Bremen; Eleto Co., 4 cs. from Southampton; Sinclair & Valentine, 6 cs. from Hamburg; American Exchange Irving Trust Co., 19 cs. from Hamburg; W. J. Byrnes & Co., 2 cs. from Hamburg; Milton Snedeker Corp., 9 cs. from Hamburg; Atlantic Forwarding Co., 6 cs. from Hamburg; F. C. Strype, 2 cs. from Rotterdam; G. W. Sheldon & Co., 3 cs. from London.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

N. 28889—Cups, paraffined paper, heavy. Nantes, France. Purchase and agency desired.

No. 28868—Toilet paper. Alexandria, Egypt. Agency desired.

No. 28886—Writing, ledger and bond paper, high grade. Copenhagen, Denmark. Purchase desired.

No. 28847—Rosin and caustic soda. Johannesburg, South Africa. Purchase desired.

No. 28937—Sulphur, crude, 750 tons. Orense, Spain. Purchase desired.

No. 29057—Cardboard box making machinery. Johannesburg, South Africa. Agency desired.

No. 29056—Overissued newspapers and journals. Baghdad, India. Agency desired.

No. 29000—Paper, impregnated. London, England. Agency desired.

No. 29058—Paper, all kinds. Panama City, Panama. Agency desired.

No. 29014—Toilet paper. Panama City, Panama. Agency desired.

No. 29066—Writing paper. Florence, Italy. Purchase and agency desired.

No. 28999—Chemicals, heavy; rosin, sulphur, etc. Hamburg, Germany. Agency desired.

N. 29186—Paper bag making industry. Bischwiller, France. Purchase desired.

No. 29185—Bond writings and ledgers. Lausanne, Switzerland. Purchase desired.

No. 29188—Cream and white paper on basis of 31 by 43 inches, 75 to 85 pounds per ream. Kobe, Japan. Purchase desired.

No. 29187—Paper bag and tube manufacturing machinery. Albi, France. Purchase desired.

Market Quotations

(*Continued from page* 1947)

BONDS	BID	ASKED
Waterway Paper Products 6s, 1931	99	101
Westfield River Paper Co. 7s	89	93
Warren (S. D.) 6s, 1945	103	105
Wayagamack Pulp & Paper Co. 6s, 1951	103	104
Whitaker Paper Co. 7s, 1942	107½	109
Whitman Parsons Pulp & Lumber Co. 8s	15	20
STOCKS		
American Book Co. Common	157	163
American Sales Book Co. Pfd		108
Common	77	80
American Tissue Mills Preferred	90	92
Androscoggin Pulp Co. Common	30	
Pfd.	90	
British Columbia Pulp & Paper Common	4	8
Pfd.	65	
Brompton Pulp & Paper Common	63	
Canadian Paperboard Co. 7% Pfd.	90	95
Champion Fibre Co. Pfd.	107½	
Champion Coated Paper Co.		125
Champion Coated Paper Pfd.	112	
Chemical Paper Mfg. Co. 1st Pfd.	90	
Chillicothe Paper Co. Pfd.		105

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B

Registered

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HIGHEST QUALITY

SPECIALLY MADE FOR THE PAPER TRADE
PRICES ON APPLICATION

BEMIS ASSOCIATES INC.

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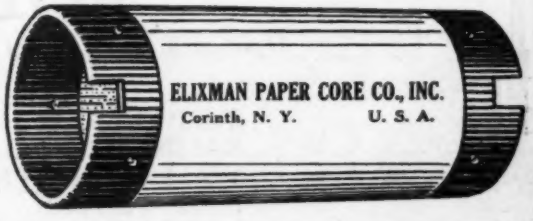

Canadian Elixman Company, Hamilton, Ontario

260 Paper Mills

ARE USING

ROEPER TRAVELING CRANES

Electric Hoists

Chain Hoists or I-Beam Trolleys

"THIS PROVES THEIR QUALITY"

Send for Descriptive Bulletins

ROEPER CRANE & HOIST WORKS, Inc.

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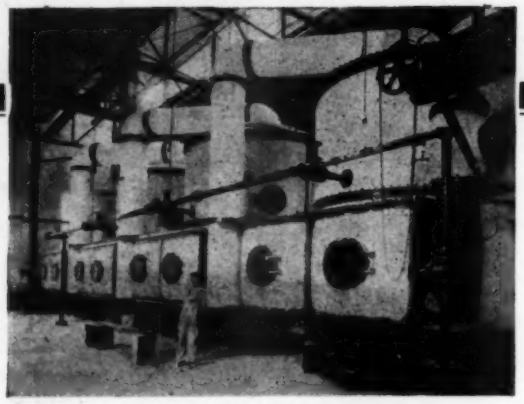

The largest quadruple effect evaporator for handling neutral sulphite waste liquor—

That is . . . . to our knowledge. Installed in 1917 it has given satisfactory service and caused no worry to its owner. Our apparatus can be installed with any designed margin of increased capacity—not only that, but the policy of Zaremba Engineers—to design each installation to meet specific conditions—has been responsible for its success.

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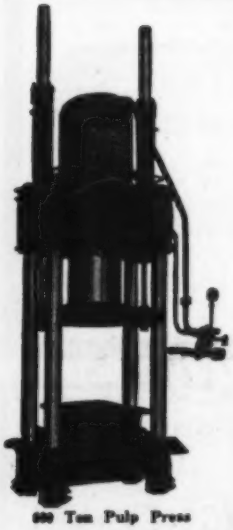
Hydraulic Equipment for Pulp and Paper Mills, Wall Board Plants, Etc.



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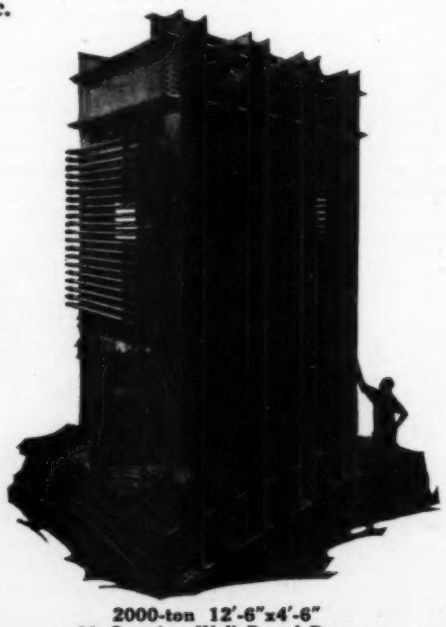
ACCUMULATORS
VALVES, FITTINGS, ETC.

Southwark Hydraulic Equipment is the choice of the largest and best known Pulp and Paper Mills throughout the country. They find Southwark products give the most efficient service under exacting conditions. Write for Bulletin No. 14.



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343 S. DEARBORN ST.

AKRON
100 E. SOUTH ST.

De Jonge (Louis) Co. Pfd.	95	97
Dryden Paper Co. Pfd.	35	40
Diem & Wing Pfd.	92	97
Downington Paper Co. Pfd.	101	
Donnacona Paper Co. Pfd.	103	
Donnacona Paper Co. Common	93	
Eastern Manufacturing Co.	38½	40
Eddy Paper Co. Common	30	
Escanaba Paper Co. Pfd.	40	
Fidalgo Pulp Mfg. Co. Common	75	
Great Northern Paper Co.	75	78
Hawley Paper Co. Pfd.	96	
Hammermill Paper Mills Pfd.	109	
Holyoke Card & Paper Pfd.	170	
Hinde & Dausch Co. Pfd.	101	
Indiana Flooring Co. Common		7
International Pulp Co. Pfd.	68	
International Textbook Co.	25	27
International Paper Co. Pfd.	106	
Jessup & Moore Paper 1st Pfd.	45	50
Jessup & Moore Paper Co. Common	5	
Marathon Paper Mills Common	125	
Minnesota & Ontario Paper Co. Pfd.	75	80
Missisquoi Pulp & Paper Pfd.	93	98
Munising Paper Co. Pfd.	80	90
Munising Paper Co. Common	20	30
National Paper & Type Co. Pfd.		84
Northern Paper Mills Com.	26	31
Oglesby Paper Co. Pfd.	101	
Occident Paper Pfd.		20
Oxford Paper Co. Pfd.	109½	
Oxford Paper Co. Common	170	180
Parker Young Co. Pfd.	77	
Port Alfred Pulp & Paper Common	118	
Port Alfred Pulp & Paper Pfd.	108	
Penobscot Chemical Fibre Co. Common	75	85
Price Bros. Common	94	
Pfd.	104	
Package Paper & Supply Units	22	
River Raisin Paper Pfd.	10	12
Robertson Paper Co. Pfd.	6	
Rogers Paper Co.	45	50
Smith (Howard) Paper Co. Pfd.	114	
Common	83	
Sorg (Paul) Paper Co. Pfd.	100	
Common		OW
St. Regis Paper Co. Pfd.	104..	105
St. Croix Paper Co. Common	160	170
Scott Paper Co. Pfd.	105	
Spanish River Pulp & Paper Pfd.	160	
Common	135	
West Virginia Pulp & Paper Common	49½	51½
Pfd.	101	103
West Virginia Timber Co. Pfd.	90	96
Western Paper Goods Co. "A"	19	21
Watervliet Paper Co.	10	20
Watson (H. F.) Paper Co.	125	
Wayagamack Paper Co.	118	

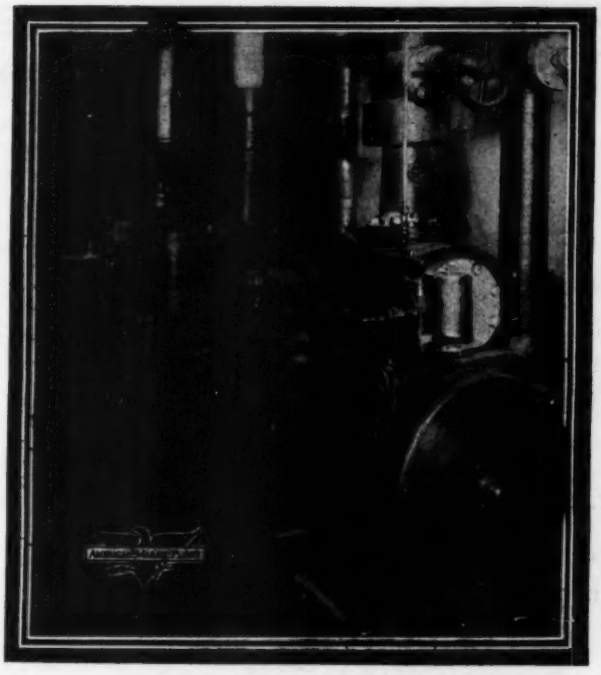
Watching Paper Importations

The Import Committee of the American Paper Industry on January 1 had 2,093 cases pending in the United States Customs Court, or before the Customs Service administrative officials. A compilation made of cases which have been disposed of shows that since the committee was formed a little over three years ago there have been 1,068 cases decided, of which 841, or upwards of 78 per cent, involved increases of duties, imposition of penalties for improper importation, or both. There are 132 cases which have been tried by the Customs Court on which no decision has been rendered as yet. In the last six months 450 cases were added to the previous total of importations of paper about whose duty status there was question. In other words the Import Committee has an average of about three paper importations a day presented for its investigation or action.

Timken Roller Bearing Co. to Expand

The officials of The Timken Roller Bearing Co. have announced an expansion program which will cost about $4,000,000. This largely concerns the company's plant at Canton, O., where both the steel mill and the bearing manufacturing plant proper will be considerably enlarged. Among other features, a new substation of greater kilowatt capacity will be built for supplying electric power for both the steel mill and the factory. The contracts for steel construction alone amount to $300,000 or more.

This enlargement of the company's facilities has been rendered necessary by the increase in business which marked the end of the past year, and by the expectation of still greater increase in 1928. There has been a growing demand for Timken steel in the steel mills, the automotive industries, paper mills, and in the manufacture of tools, all kinds of machinery, power transmission equipment, and other numerous industrial uses.



American-Marsh Boiler-Feed Pump, outside center packed, 125 pounds pressure.

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If you are not familiar with American-Marsh pumps, it will pay you to investigate. Write for Bulletins. Better still, have our engineers submit a definite recommendation and cost estimate to meet your particular requirements.

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BATTLE CREEK, MICHIGAN, U. S. A.

Complete Line—Centrifugal and Steam Pumps

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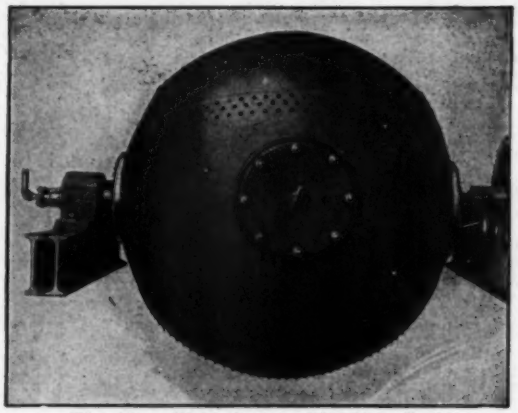

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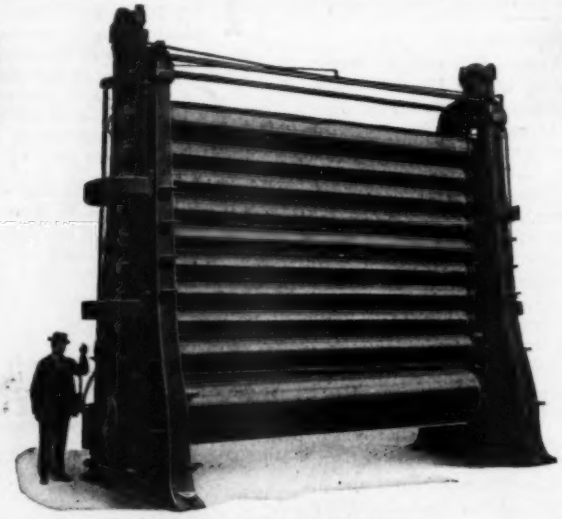

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